Site # 18

ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES

PHASE I INVESTIGATION

DOVER LF # 3

(Route 22, Eastside) Site No. 314032
Town of Dover Dutchess County

NYD980508147

DATE: October 1989

FILE COPY

Prepared for:

New York State Department of Environmental Conservation

50 Wolf Road, Albany, New York 12233
Thomas C. Jorling, *Commissioner*

Division of Hazardous Waste Remediation
Michael J. O'Toole, Jr., P.E., *Director*

By:

Lawler, Matusky & Skelly Engineers

ENGINEERING INVESTIGATIONS AT INACTIVE HAZARDOUS WASTE SITES IN THE STATE OF NEW YORK PHASE I INVESTIGATIONS

ROUTE 22 EASTSIDE
Town of Dover
Dutchess County
NYSDEC I.D. No. 314032

Prepared For:

DIVISION OF HAZARDOUS WASTE REMEDIATION
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
50 Wolf Road
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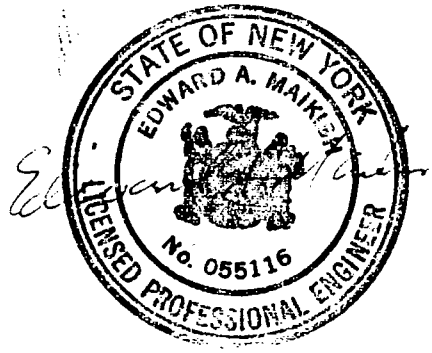

Prepared By:

LAWLER, MATUSKY & SKELLY ENGINEERS
Environmental Science & Engineering Consultants
One Blue Hill Plaza
Pearl River, New York 10965

October 1989

LMSE-89/0571&576/021

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CHAPTER 1

EXECUTIVE SUMMARY

The Route 22 Eastside site is located on Route 22 in the Village of Dover Plains, in the Town of Dover, Dutchess County, New York (Figure 1-1). The fill area is less than 2 acres in size and lies between Route 22 on the west side and the Penn-Central Railroad on the east side. It is 100 ft west of the Valley View Cemetery, 350 ft south of Wells Brook, and 400 to 800 ft south of Stone Church Brook (Figure 1-2).

From the mid-1940s to the early 1960s the site was used as a municipal landfill for household refuse. Residents carted their refuse and dumped it into the marshy depression, usually covering it with soil. There is no record of hazardous waste ever being disposed of at the site and apparently there are no sampling results for the site. Potable water is supplied by groundwater through private and public wells as close as 1000 and 2200 ft, respectively.

The property is owned by Mr. Richard Rennia and Mr. Robert Keller of Dover Plains (Table 1-1). The current owners have excavated the southern property banks and used the excavated soil to level the marshland and as cover material for the landfill. Off-site soils from construction sites were also used as cover and fill material.

The landfill was inspected on 1 September 1988 during a Phase I investigation by Lawler, Matusky & Skelly Engineers (LMS) under contract to the New York State Department of Environmental Conservation (NYSDEC). The site was well vegetated and no evidence of

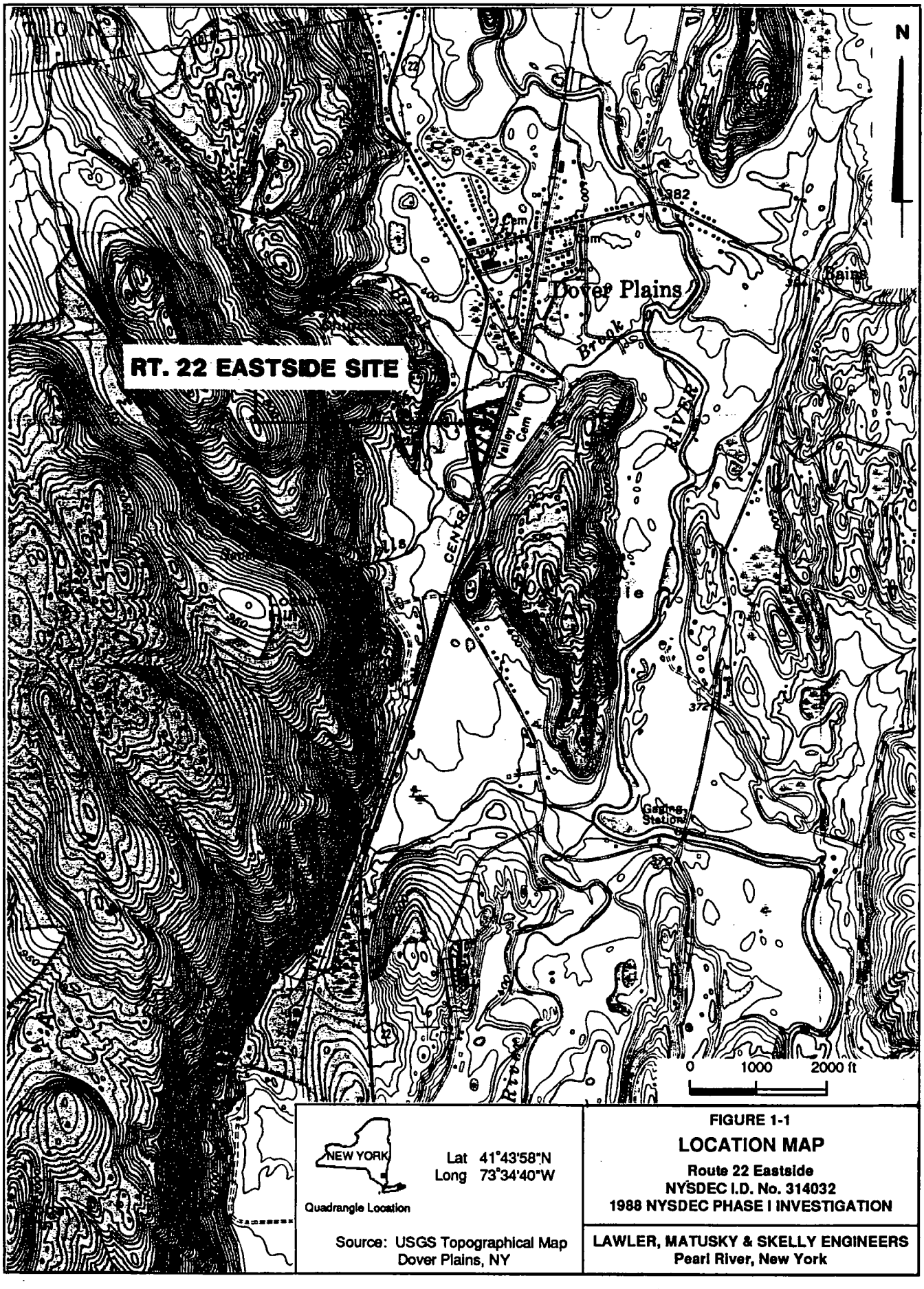
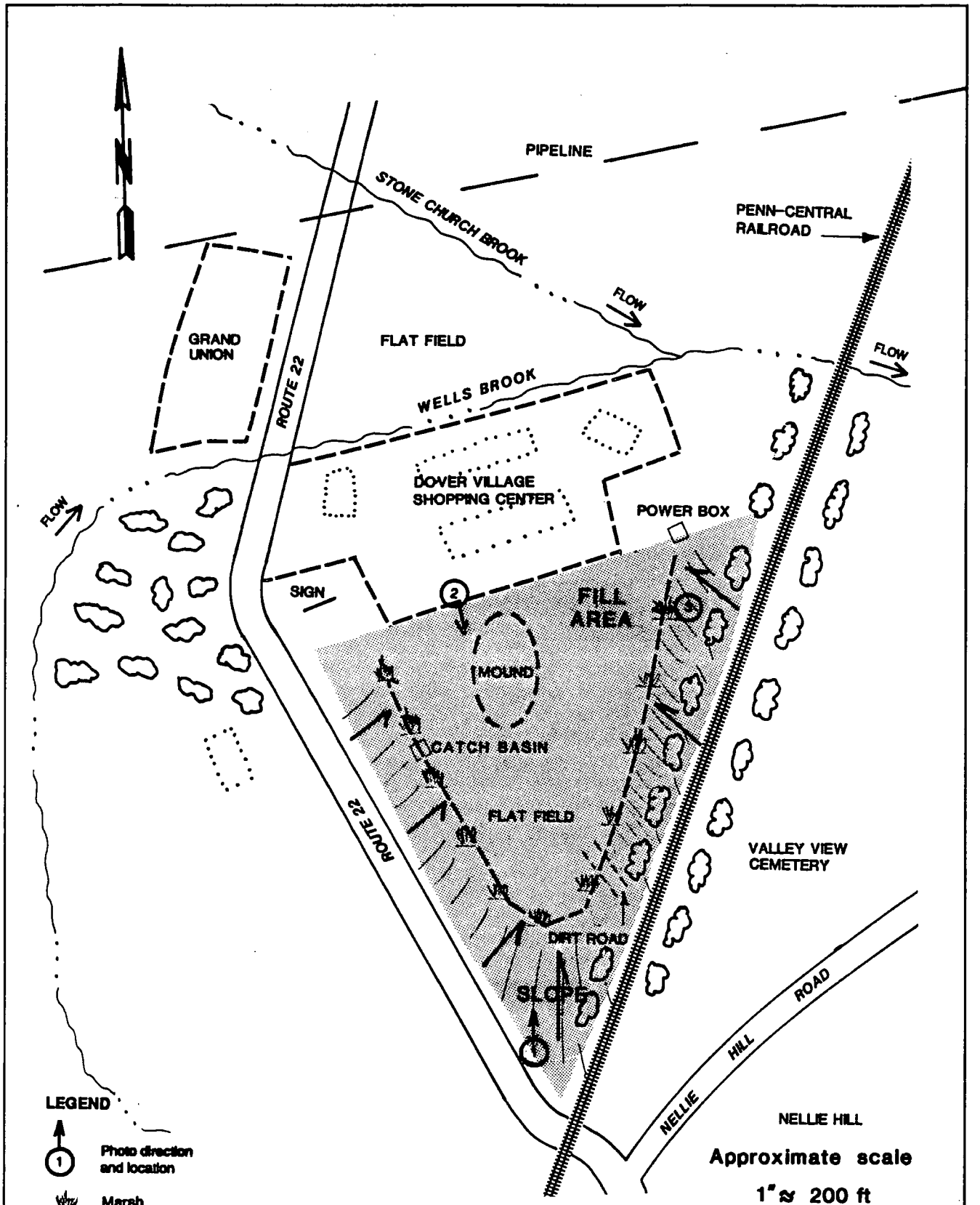


FIGURE 1-1

LOCATION MAP

Route 22 Eastside
NYSDEC I.D. No. 314032
1988 NYSDEC PHASE I INVESTIGATION

LAWLER, MATUSKY & SKELLY ENGINEERS
Pearl River, New York



1988 NYSDEC PHASE I INVESTIGATION

LAWLER, MATUSKY & SKELLY ENGINEERS
Pearl River, New York

FIGURE 1-2

SITE SKETCH - 1 September 1988

Route 22 Eastside Site
NYSDEC I.D. No. 314032

TABLE 1-1

ADDRESSES AND TELEPHONE NUMBERS OF CURRENT OWNERS

As filed in the Town Records:

Mr. Richard Rennia and
Mr. Robert Keller
P.O. Box 238
Dover Plains, NY 12522

Home Addresses & Telephone:

Mr. Richard Rennia
Nellie Hill Road
Dover Plains, NY 12522
914-877-3425

Mr. Robert Keller
Benson Hill Road
Dover Plains, NY 12522
914-877-3574

Business Address & Telephone:

Rennia Richards Mobile Home Sales
Powell Road
Dover Plains, NY 12522
914-877-3710

stressed vegetation was found. The property is a level, open field bordered by steep, upward slopes to the south, southeast, and southwest, and is easily accessible to the public (Photos 1-1 through 1-3).

During the Phase I effort, information and data on the site were compiled from state, Federal, county, and municipal offices as well as private concerns. General information on the area was obtained from the LMS library, a 1 September 1988 inspection of the site, and interviews with personnel associated or acquainted with the site's history and/or operations. All of the collected material was reviewed in preparing this report, which provides a history, preliminary assessment, and preliminary score of the site based on the U.S. Environmental Protection Agency's (EPA) Hazard Ranking System (HRS).

EPA uses the HRS to apply uniform technical judgment in evaluating the relative hazards presented by sites being considered for Federal Superfund remediation. The HRS addresses only relative hazard. It does not assess the feasibility, desirability, or degree of cleanup required, nor does it address all potential environmental or health impacts.

Under the HRS three numerical scores are computed for each site to express the relative risk or danger from the site, taking into account the population at risk; the hazardous potential of substances found at the site; the potential for contamination of drinking water supplies, for direct human contact, and for destruction of sensitive ecological systems; and other appropriate factors. The three scores are:

- S_M, reflecting the potential for harm to humans or the environment from migration of a hazardous

PHOTO 1-1 - From Route 22 looking north across the landfill at the Dover Village Shopping Center. Site is well vegetated, rather flat in the center, and a ditch runs along the bottom of the steep, downward slopes.

PHOTO 1-2 - From Dover Village Shopping Center parking lot looking south across the landfill. Notice dirt mound in center, steep upward slopes to the south, and treeline to the southeast.

PHOTO 1-3 - Photograph was taken from the treeline adjacent to the railroad tracks looking west across the landfill at Route 22, West Mountain, and a commercial building.

substance from the facility by groundwater (S_{GW}), surface water (S_{SW}), or air (S_A). It is a composite of separate scores for each of the three routes.

- S_{FE}, reflecting the potential for harm from substances that can explode or cause fires.
- S_{DC}, reflecting the potential for harm from direct contact with hazardous substances at the facility.

The preliminary HRS scores for the Route 22 Eastside site are as follows:

$S_M = 0$ ($S_{GW} = 0$; $S_{SW} = 0$; $S_A = 0$)

$S_{FE} = NS^*$

$S_{DC} = 0$

The low scores are due to a lack of information on the presence of hazardous wastes at the site. The fire and explosive route was not scored because the site has not been certified by a state or local fire marshal as a threat from fire and explosion, nor did field measurements by an explosimeter demonstrate any threat from fire or explosion.

It is suggested that this site be a candidate for delisting and that NYSDEC should take no further action. If NYSDEC requires additional information before delisting, it is recommended that one or two soil boring samples be collected through the fill and analyzed for hazardous parameters.

*NS - Not scored/no score.

CHAPTER 2

PURPOSE

The Route 22 Eastside site is listed in the New York State Registry of Inactive Hazardous Waste Disposal Sites under a 2a classification. This is a temporary classification for sites for which there are inadequate data to properly assign them to one of the five standard classifications.

The purpose of the Phase I investigation was to prepare a report for the Route 22 Eastside site that provides a history and preliminary assessment of the site based on the review of available data and assigns a numerical value to the site using the HRS to determine what actions should be undertaken next at the site.

Specifically, the purpose of this report is to provide a preliminary characterization of hazardous substances present at the site; estimate pathways by which pollutants might be migrating from the disposal site; determine what population or resources might be affected by pollutants from the disposal site; observe and/or record how the disposal area was used or operated; and gather information regarding who might be responsible for the wastes at the site.

CHAPTER 3

SCOPE OF WORK

To accurately characterize the Route 22 Eastside site, LMS personnel conducted an intensive search for literature and information on the site and vicinity. General information on regional geography, geology, and hydrogeology was obtained from our library and other sources. A site inspection, with the current owners present, was conducted on 1 September 1988. Information and data from state, Federal, county, and municipal offices as well as private concerns were also gathered.

The following state, Federal, county, and municipal office files provided information and data regarding past operations, sampling activities, and general information:

- Mr. Ram Pergardia
  New York State Department of Environmental Conservation (NYSDEC)
  Region 3
  21 South Putt Corners Road
  New Paltz, New York 12581
  914-255-5453

- Mr. Michael Komoroske
  New York State Department of Environmental Conservation (NYSDEC/DHWR)
  Central Office
  50 Wolf Road
  Albany, New York 12233
  518-457-0639

- Mr. Steven Bates
  New York State Department of Health (NYSDOH)
  2 University Place
  Albany, New York 12203
  518-458-6310

- Ms. Sandy Hansen
  U.S. Environmental Protection Agency (EPA)
  Region II
  Woodbridge Avenue
  Edison, New Jersey 08837
  201-321-6776

- Mr. David Ruff
  Dutchess County Department of Health (DCDOH)
  22 Market Street
  Poughkeepsie, New York 12601
  914-431-2068

- Ms. Diane Judson, Supervisor
  Town of Dover
  Town Hall
  East Duncan Hill Road
  Dover Plains, New York 12522
  914-832-6111

- Mr. Lawrence P. Brown
  New York State Department of Environmental Conservation (NYSDEC)
  Significant Habitat Unit
  Wildlife Resources Center
  Delmar, New York 12054-9767
  518-439-7486
  (will be moving to Latham soon)

- Mr. Robert Dibble, District Conservationist
  Soil Conservation Service
  Farm and Home Center, Route 44
  P.O. Box 37
  Milbrook, New York 12545
  914-677-3194

A site inspection was conducted to document existing environmental conditions, prepare a site sketch, take photographs, measure air quality, and investigate the existence and possible migration pathways of contaminants at the site. During the site visit, the general topography and geology of the site, evidence of waste disposal, form of waste disposal, visible signs of contaminant release to the environment, accessibility to the site, location relative to water supplies, location of population centers, sensitive environments such as wetlands, etc., were all noted. To evaluate air

quality, air monitoring was conducted during the site inspection with an HNU and a Neotronics Exotox 40 (a combustible gas indicator [CGI]).

The following individuals were contacted for information on past operations and sampling activities and for permission to inspect the site:

- Mr. Richard Rennia
  Site Owner
  Nellie Hill Road
  Dover Plains, New York 12522
  914-877-3425

- Mr. Robert Keller
  Site Owner
  Benson Hill Road
  Dover Plains, New York 12522
  914-877-3574

In addition to the above individuals and agency files, NUS Corporation's (NUS) files were reviewed. Their files provided a copy of the EPA Preliminary Assessment forms 2070-12 and 2070-13, the preliminary assessment report, and the notes on the interview of town officials. The contact and address for this corporation are:

- Mr. Charles LoBue
  NUS Corporation
  1090 King George Post Road, Suite 1103
  Edison, New Jersey 08837
  201-225-6160

CHAPTER 4

SITE ASSESSMENT

4.1 SITE HISTORY

The Route 22 Eastside site is located on Route 22 in the Village of Dover Plains, within the Town of Dover, Dutchess County, New York (Figure 1-1). The fill area is less than 2 acres in size and lies between Route 22, on the west side, and the Penn-Central Railroad, on the east side (Ref. 1, Appendix A). The fill area was part of a 10-acre tract, a portion of which has been developed into the Dover Village Shopping Center that comprises the northern border of the site at the present time (Ref. 2, Appendix A). The site is 100 ft west of Valley View Cemetery, 350 ft south of Wells Brook, and 400 to 800 ft south of Stone Church Brook (Figure 1-2). Since the site is not fenced, it is easily accessible to the public (Ref. 1, Appendix A).

From the late 1940s to the early 1960s, the site was used as a municipal landfill for household refuse. During use of the site, a loosely graveled road led from the bend of Route 22 to the landfill. Residents carted their refuse to the site, dumped it into the marshy depression, and covered it with soil. Refuse was often burned. The amount and composition of material is not known. Since the town supported several industries during the active life of the landfill, it was alleged that hazardous wastes from these industries might have been disposed on-site. However, no records were found during this investigation to prove this allegation. All records and notes indicate that the Route 22 Eastside landfill accepted only municipal wastes, particularly household wastes, and is not suspected by town officials or owners of accepting any haz-

ardous wastes (Refs. 1 and 2, Appendix A). No sampling results for this site were found.

Currently the property is owned by Mr. Richard Rennia and Mr. Robert Keller of Dover Plains, New York (Table 1-1). At the time the landfill was active, it was owned by a Mr. Dave Farrell who leased it to the town. The current owners leveled the landfill and excavated an area on the southern end of the property. They used the excavated soil as fill to level the marshland and as additional cover material for the landfill. Additional off-site soils, from construction sites in the area, have been used to cover the fill and stabilize the former marsh area (Refs. 1 and 2, Appendix A).

The landfill was inspected on 1 September 1988 during a Phase I investigation by LMS under contract to NYSDEC. The property is a level, open field. It is well vegetated and bordered by steep upward slopes to the south, southwest, and southeast. A soil mound, ready to be spread, occupied the center of the former fill area. The owners hope to use the property for commercial (shopping center) purposes. No evidence of stressed vegetation was found (Photos 1-1 through 1-3; Ref. 1, Appendix A).

The property north of the former fill area, the Dover Village Shopping Center, had been filled and leveled. It is reported that the layers of soil were not compacted properly as piers partially support one building (Ref. 1, Appendix A). The current owners of the landfill will continue to add soil and compact the site in order to prevent sinking of future structures on-site. According to past inspection reports, in the late 1970s and early 1980s there were six construction contractors on the property, along with material for the construction of the Dover Village Shopping Center (Ref. 3, Appendix A). At the time of the LMS site visit the property had

been cleared of all construction material and contractors (Ref. 1, Appendix A).

4.2 SITE AREA

4.2.1 Environmental Setting

The site, less than 2 acres in size, is located approximately one-quarter mile south on the outskirts of the sparsely populated, rural village of Dover Plains. Dover Plains is a village located in the central northern region of the Town of Dover with a population of 7261 over 56 mi^2 in 1980 (Ref. 4, Appendix A). Scattered residential homes are located within 1000 ft to the northeast, east, and southeast on Nellie Hill Road. Commercial buildings are located adjacent to the northern border (Dover Village Shopping Center) of the site. Within 500 ft west, across Route 22, is a Grand Union supermarket and some small stores. Valley View Cemetery is located 100 ft east of the site, across the Penn-Central Railroad tracks. About 350 ft north of the site is Wells Brook; 400 to 800 ft north of the site is Stone Church Brook (Refs. 1 and 5, Appendix A).

There are several critical habitats within a mile of the landfill (Table 4-1). Several of these habitats are rare plants; a couple of habitats are colonies; and one habitat is an endangered plant specie, Side-oats Grama (Ref. 6, Appendix A). No national or state park, forest, or wildlife reserve is found within two miles of the landfill (Ref. 7, Appendix A).

The prime agricultural farms were located based on soils designated as prime soils. The Route 22 Eastside landfill, according to soil classifications, contains prime soils (Ref. 8, Appendix A). How-

TABLE 4-1

CRITICAL HABITATS

COMMON NAME	SCIENTIFIC NAME	DISTANCE (ft) FROM LANDFILL	TYPE	STATUS
Carolina whitlow-grass	Draba reptans	400-800	Plant	Rare
Side-oats grama	Bouteloua curti-pendula	1200	Plant	Endangered
Yellow wild flax	Linum sulcatum	1200	Plant	Rare
Blazing-star	Chamaelirium luteum	1800	Plant	Rare
Green milkweed	Ascelipias viridi-flora	1900	Plant	Rare
Virginia false gromwell	Onosmodium virgin-ianum	1900	Plant	Rare
Blazing-star	Chemaelirium luteum	1900	Plant	Rare
New England blaz-ing-star	Liatris scariosa Var. Novae-Angliae	1900	Plant	Rare
Appalachian calcare-ous rocky summit	-	1900	Colony	-
Carolina whitlow-grass	Draba reptans	4200-5600	Plant	Rare
Bicknell sedge	Carex bicknellii	4200-5600	Plant	Rare
Yellow wild flax	Linum sulcatum	4200-5600	Plant	Rare
Green milkweed	Asclepias viridi-flora	4200-5600	Plant	Rare
Appalachian calcare-ous rocky summit	-	4200-5600	Colony	-
Rich graminoid fen	-	4200-5600	Colony	-

Ref. 6, Appendix A

ever, it is probable that the site has not been used as a farm, specifically as a prime agricultural farm, for over 30 years. The next nearest prime soils are to the northeast, east, and southeast within 2000 ft (Ref. 8, Appendix A). Farms were seen in the area during the LMS site visit.

4.2.2 Topography and Drainage

The vicinity's topography is characterized by numerous regular shaped hills and low mountains (Ref. 9, Appendix A). The site is located in a low-lying marsh, near the base of Nellie Hill and West Mountain (Ref. 5, Appendix A). The valley between West Mountain, Nellie Hill, and East Mountain is commonly called the Harlem Valley and is part of the Housatonic River Drainage Basin (Ref. 10, Appendix A).

The center of the site is relatively flat with a downward slope of about 1% in a northerly direction. The southeast, south, and southwest (east and west) borders are characterized by steep downward slopes of greater than 8% from the railroad tracks and Route 22. A narrow marshy area exists at the base of the Route 22 embankment (Refs. 1 and 5, Appendix A).

Surface water drains 350 ft north-northeast of the site into Wells Brook, flows east into Stone Church Brook, and then flows east into the Tenmile River (Ref. 10, Appendix A). Although Wells Brook, a NYS Class A waterway, is suitable as a supplemental water supply for Dover Plains, New York, it has not been used since 1957 as a source for drinking water (Ref. 9, p. 43, Appendix A). Stone Church Brook and the Tenmile River are NYS Class C waterways suitable for fishing, fish propagation, and contact recreation such as boating, but they are not used as a potable water supply (Refs. 10

11, Appendix A). The Tenmile River, about 3000 ft west of the site, flows south then east into the Housatonic River in Connecticut and eventually into Long Island Sound (Ref. 10, Appendix A).

The nearest NYSDEC-regulated wetland is 3200 ft north of the landfill. Southwest beyond Nellie Hill and the Tenmile River and within 4400 ft of the landfill is another regulated wetland (Ref. 12, Appendix A).

4.3 SITE HYDROGEOLOGY

4.3.1 Soils

The Soil Conservation Service has classified soils found southwest of Dover Plains in the area of the site as Copake gravelly loam, nearly level and undulating. Copake soils are derived from outwash sand and gravel containing calcareous sandstone or limestone materials, making the soil calcareous in the substratum. Internal drainage in these soils is good (Ref. 13, Appendix A). These soils are also classified as prime soils and may be used for prime agricultural farm use (Ref. 8, Appendix A).

4.3.2 Geology

Overlying the Stockbridge Limestone bedrock formation are unconsolidated deposits derived from glaciers and glacial meltwater. These deposits consist of stratified glacial till (derived from glaciers), composed of a mixture of clay, sand, and gravel, and (chiefly) stratified glacial outwash (derived from glacial meltwater), comprised of sand and gravel. The stratified deposits generally range in thickness from a few feet to as much as 200 ft, but in the area of the site the thickness is roughly 100 ft (Ref. 9,

pp. 24 and 25, Appendix A). These deposits generally occur in the principal form called valley trains. Valley-train deposits are long and narrow deposits of sand and gravel underlying the valley floors (Ref. 9, pp. 24 and 25, Appendix A).

The bedrock first encountered underlying the unconsolidated deposits (the Dover Plains area in the Tenmile River Valley) is the Stockbridge Limestone. This unit is a sequence of white to gray limestone and dolomite, metamorphosed to marble. The thickness of the Stockbridge Limestone is approximately 1000 ft with local variations due to folding and faulting. In this region, the depth to bedrock is approximately 100 ft below the ground surface. The Stockbridge Limestone is bounded by thrust faults to the east and west. These faults trend north-northeast, roughly parallel to the contours of the Tenmile River as it flows through the Dover Plains area (Ref. 9, pp. 17, 18, and 19, Appendix A). To the east, the Cheshire Quartzite (Poughquag Quartzite) is thrust westward over the Stockbridge Limestone.

Below the Stockbridge Limestone is another bedrock formation called the Cheshire Quartzite (Ref. 9, p. 17, Appendix A). This unit is strong, compact rock composed almost entirely of quartz that is generally white, but is at times pink or buff due to impurities. The thickness of the Cheshire Quartzite varies from a few feet to about 600 feet (Ref. 9, p. 16, Appendix A).

4.3.3 Groundwater

Groundwater in the Dover Plains area occurs in both unconsolidated surficial deposits and consolidated deposits (bedrock). Recharge for groundwater is provided primarily by snowfall and rain (Ref. 9, p. 25, Appendix A). The average annual precipitation is approxi-

mately 45 in. (Ref. 14, Appendix A). A large part of precipitation returns to the atmosphere by evaporation and is transpired by vegetation or run off to a stream. The remainder percolates into the ground (Ref. 9, p. 25, Appendix A). The average annual evaporation is approximately 30 in. which yields a net annual precipitation of approximately 15 in. (Ref. 14, Appendix A).

The groundwater level fluctuates and ranges from 5 to 10 ft below surface elevation in the unconsolidated surficial deposits, but on the average the water level is around 6 ft below the surface (Ref. 2, p. 7, Appendix A). The unconsolidated surficial deposits consisting mainly of stratified sand and gravel yield an average of 10 to 15 gpm. Supplies adequate for municipal and industrial needs can be obtained from these stratified deposits (Ref. 9, p. 31, Appendix A).

The Stockbridge Limestone is the most productive bedrock unit, with yields averaging 22 gpm and ranging widely from 0 to 220 gpm. The water is moderately hard and high in dissolved solids. This bedrock unit overlies the Cheshire Quartzite, which yields about 10 gpm. The use of Cheshire Quartzite as a source of groundwater is insignigicant due to its lower yield and difficulty to drill through (Ref. 9, p. 34, Appendix A).

Prior to 1957, water for Dover Plains was obtained entirely from Wells Brook (Ref. 9, p. 43, Appendix A). Since 1957, the water supply has been obtained from a municipal water system that taps the Stockbridge Limestone bedrock unit. The Dover Water Company wells are located within 2200 ft north-northwest of the landfill site and serve fewer than 1500 people (about half the population) from the Village of Dover Plains (Refs. 15 and 16, Appendix A). The Grand Union Shopping Center, across Route 22, also uses the

municipal water system. A non-municipal community well, serving the Powell Road Mobile Park's approximately 115 residents, is located within 3500 ft north-northeast of the site. The homes along Nellie Hill Road (bordering the Valley View cemetery) and the Dover Village Shopping Center use private wells (Ref. 15, Appendix A). The type of well and the aquifer they tap is unknown. However, the private wells probably tap into the surficial deposits and are about 50 ft deep (Ref. 2, p. 7, Appendix A).

4.4 PREVIOUS SAMPLING AND ANALYSIS

There were no analytical results found for groundwater, surface water, sediment, soils, or air in the area near the site. Air quality monitoring equipment used during site inspections indicated no air quality problems.

CHAPTER 5

PRELIMINARY APPLICATION OF THE HAZARD RANKING SYSTEM

5.1 NARRATIVE SUMMARY

The Route 22 Eastside site, an inactive sanitary landfill covering an area of no more than 2 acres, is located on Route 22, in the Village of Dover Plains, within the Town of Dover, Dutchess County, New York. The site was actively used for about 10 years during 1940 to 1960 for household refuse only.

The former fill area was partially in wetlands which have been filled, leveled, and stabilized with soil from off-site construction site soils and on-site soils. The site is part of the Housatonic River drainage basin. Surface waters drain into Wells Brook, 350 ft north of the site, a NYS Class A waterway suitable as a water supply and into Stone Church Brook, 550 ft north-northeast of the site, a NYS Class C waterway. The Village of Dover Plains community water supply wells, 2200 ft north-northwest of the site, serve fewer than 1500 people including the Grand Union Shopping Center. The Dover Village Shopping Center, <0.05 mi north of the site, and the homes along Nellie Hill Road, 0.19 mi east of the site, use private well water.

The unconsolidated surficial deposits consist mainly of stratified sand and gravel and yield an average of 10 to 15 gpm. The Stockbridge Limestone bedrock unit underlying the surficial deposits yields about 22 gpm and is about 100 ft below the surface.

There is no record of any hazardous waste disposal on-site and no data are available to evaluate the status of potential contaminant transport routes.

5.2 LOCATION MAP

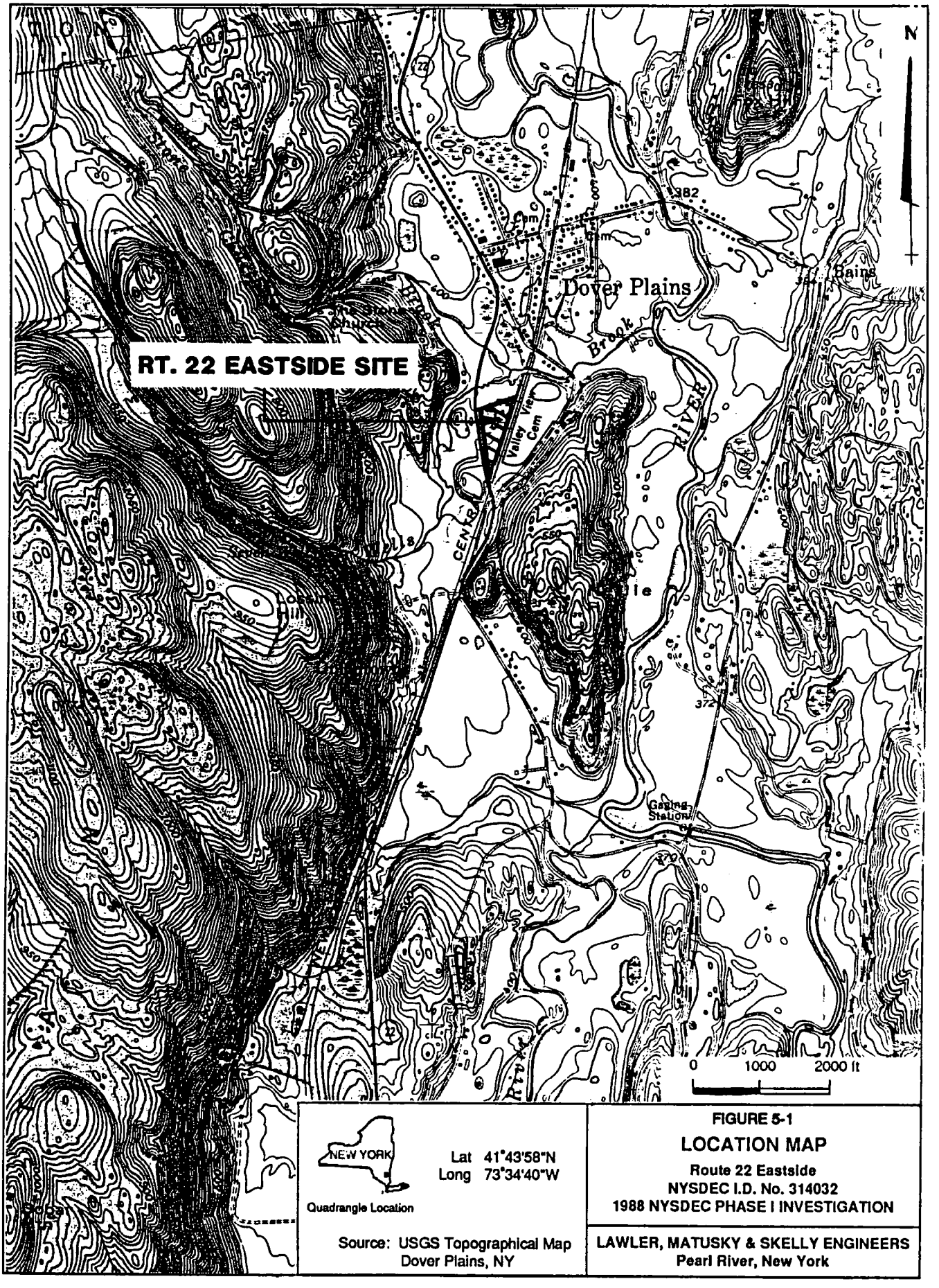


FIGURE 5-1

LOCATION MAP

Route 22 Eastside
NYSDEC I.D. No. 314032
1988 NYSDEC PHASE I INVESTIGATION

LAWLER, MATUSKY & SKELLY ENGINEERS
Pearl River, New York

5.3 HRS WORKSHEETS

HRS COVER SHEET

Facility Name: Route 22 EASTSIDE (NYSDEC NO. 314032)

Location: On Route 22, south of Dover Village Shopping Center

EPA Region: Region 3, Dutchess County, NY

Person(s) in charge of the facility: Richard Rennia & Robert Keller, site owners
P.O. Box 238
Dover Plains, NY 12522
914/877-3710

Name of Reviewer: William C. Thayer/
Maritza Montesinos-Gross **Date:** 25 January 1989

General description of the facility:
(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action; etc.)

Former municipal landfill, 2 acres in a lowlying marsh, operated from late 1940s to the early 1960s. Landfill not suspected of containing hazardous waste. No analytical data available. During site visit, LMS observed no signs of stressed vegetation, site well vegetated, no leachate, no visible waste and has a good soil cover. Shopping center is within 300 ft; residential areas are within 1000 ft; nearest downgradient surface water, a source of drinking water is 350 ft north; community well is 2500 ft NNW and serves 1500 people; and nearest private well is located in shopping center. The area is mainly supplied by private wells. The population within 3 miles is about 1800.

Scores: S_M= 0 (S_{GW}= 0 S_{SW}= 0 S_A= 0)

S_{FE}= Not scored

S_{DC}= 0

GROUNDWATER ROUTE WORK SHEET

	RATING FACTOR	ASSIGNED VALUE (circle one)	MULTIPLIER	SCORE	MAXIMUM SCORE	REFERENCE (section)
1	OBSERVED RELEASE	(0) 45	1	0	45	3.1
	If observed release is given a score of 45, proceed to line [4]					
	If observed release is given a score of 0, proceed to line [2]					
2	ROUTE CHARACTERISTICS					3.2
	Depth of Aquifer of Concern	0 1 2 (3)	2	6	6	
	Net Precipitation	0 1 2 (3)	1	3	3	
	Permeability of the Unsaturated Zone	0 1 (2) 3	1	2	3	
	Physical State	0 (1) 2 3	1	1	3	
	Total Route Characteristics Score			12	15	
3	CONTAINMENT	0 1 2 (3)	1	3	3	3.3
4	WASTE CHARACTERISTICS					3.4
	Toxicity/Persistence	(0) 3 6 9 12 15 18	1	0	18	
	Hazardous Waste Quantity	(0) 1 2 3 4 5 6 7 8	1	0	8	
	Total Waste Characteristics Score			0	26	
5	TARGETS					3.5
	Groundwater Use	0 1 (2) 3	3	6	9	
	Distance to Nearest Well/Population Served	0 4 6 8 10 / 12 16 18 20 / 24 (30) 32 35 40	1	30	40	
	Total Targets Score			36	49	
6	If line [1] is 45, multiply [1] X [4] X [5]					
	If line [1] is 0, multiply [2] X [3] X [4] X [5]			0	57,330	
7	Divide line [6] by 57,330 and multiply by 100			S_{gw} = 0		

SURFACE WATER ROUTE WORK SHEET

	RATING FACTOR	ASSIGNED VALUE (circle one)	MULTIPLIER	SCORE	MAXIMUM SCORE	REFERENCE (section)
1	OBSERVED RELEASE	(0) 45	1	0	45	4.1
	If observed release is given a value of 45, proceed to line 4					
	If observed release is given a value of 0, proceed to line 2					
2	ROUTE CHARACTERISTICS					4.2
	Facility Slope and Intervening Terrain	0 1 (2) 3	1	2	3	
	1-yr 24-hr Rainfall	0 1 (2) 3	1	2	3	
	Distance to Nearest Surface Water	0 1 2 (3)	2	6	6	
	Physical State	0 (1) 2 3	1	1	3	
	Total Route Characteristics Score			11	15	
3	CONTAINMENT	0 1 2 3	1	1	3	4.3
4	WASTE CHARACTERISTICS					4.4
	Toxicity/Persistence	(0) 3 6 9 12 15 18	1	0	18	
	Hazardous Waste Quantity	(0) 1 2 3 4 5 6 7 8	1	0	8	
	Total Waste Characteristics Score			0	26	
5	TARGETS					4.5
	Surface Water Use	0 1 2 (3)	3	9	9	
	Distance to a Sensitive Environment	0 (1) 2 3	2	2	6	
	Population Served/ Distance to Water Intake Downstream	0 4 6 8 (10) 12 16 18 20 24 30 32 35 40	1	10	40	
	Total Targets Score			21	55	
6	If line 1 is 45, multiply 1 X 4 X 5			0	64,350	
	If line 1 is 0, multiply 2 X 3 X 4 X 5					
7	Divide line 6 by 64,350 and multiply by 100			S_{sw} = 0		

AIR ROUTE WORK SHEET

RATING FACTOR	ASSIGNED VALUE (circle one)	MULTIPLIER	SCORE	MAXIMUM SCORE	REFERENCE (section)
1 OBSERVED RELEASE	(0) 45	1	0	45	5.1
DATE AND LOCATION:					
SAMPLING PROTOCOL:					
If line 1 is 0, then Sa = 0. Enter on line 5					
If line 1 is 45, then proceed to line 2					
2 WASTE CHARACTERISTICS					5.2
Reactivity and Incompatibility	(0) 1 2 3	1	0	3	
Toxicity	(0) 1 2 3	3	0	9	
Hazardous Waste Quantity	(0) 1 2 3 4 5 6 7 8	1	0	8	
Total Waste Characteristics Score			0	20	
3 TARGETS					5.3
Population Within 4-Mile Radius	0 9 12 15 (18) 21 24 27 30	1	18	30	
Distance to Sensitive Environment	0 (1) 2 3	2	2	6	
Land Use	0 1 2 (3)	1	3	3	
Total Targets Score			23	39	
4 Multiply 1 X 2 X 3			0	35,100	
5 Divide line 4 by 35,100 and multiply by 100		S_A = 0			

WORKSHEET FOR COMPUTING S_M

	S	S^2
GROUNDWATER ROUTE SCORE (S_{GW})	0	0
SURFACE WATER ROUTE SCORE (S_{SW})	0	0
AIR ROUTE SCORE (S_A)	0	0
$S^2_{GW} + S^2_{SW} + S^2_A$		0
$\sqrt{S^2_{GW} + S^2_{SW} + S^2_A}$		–
$\sqrt{S^2_{GW} + S^2_{SW} + S^2_A} / 1.73$ (S_M)		–

FIRE AND EXPLOSION WORK SHEET

Not certified as a significant fire and explosion threat by Fire Marshall.
No threat was observed in the field.

	RATING FACTOR	ASSIGNED VALUE (circle one)	MULTIPLIER	SCORE	MAXIMUM SCORE	REFERENCE (section)
1	CONTAINMENT	1 3	1		3	7.1
2	WASTE CHARACTERISTICS					7.2
	Direct Evidence	0 3	1		3	
	Ignitability	0 1 2 3	1		3	
	Reactivity	0 1 2 3	1		3	
	Incompatibility	0 1 2 3	1		3	
	Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
	Total Waste Characteristics Score				20	
3	TARGETS					7.3
	Distance to Nearest Population	0 1 2 3 4 5	1		5	
	Distance to Nearest Building	0 1 2 3	1		3	
	Distance to Sensitive Environment	0 1 2 3	1		3	
	Land Use	0 1 2 3	1		3	
	Population Within 2-Mile Radius	0 1 2 3 4 5	1		5	
	Buildings Within 2-Mile Radius	0 1 2 3 4 5	1		5	
	Total Targets Score				24	
4	Multiply [1] X [2] X [3]				1,440	
5	Divide line [4] by 1,440 and multiply by 100		S_{FE} =			

DIRECT CONTACT WORK SHEET

	RATING FACTOR	ASSIGNED VALUE (circle one)	MULTIPLIER	SCORE	MAXIMUM SCORE	REFERENCE (section)
1	OBSERVED INCIDENT	(0) 45	1	0	45	8.1
	If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2	ACCESSIBILITY	0 1 2 (3)	1	3	3	8.2
3	CONTAINMENT	(0) 15	1	0	15	8.3
4	WASTE CHARACTERISTICS TOXICITY	(0) 1 2 3	5	0	15	8.4
5	TARGETS					8.5
	Population Within a 1-Mile Radius	0 1 2 (3) 4 5	4	12	20	
	Distance to a Critical Habitat	(0) 1 2 3	4	0	12	
	Total Targets Score			12	32	
6	If line 1 is 45, multiply 1 X 4 X 5 If line 1 is 0, multiply 2 X 3 X 4 X 5			0	21,600	
7	Divide line 6 by 21,600 and multiply by 100			S_{DC} = 0		

5.4 HRS DOCUMENTATION RECORDS

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

INSTRUCTIONS: The purpose of these records is to provide a convenient way to prepare an auditable record of the data and documentation used to apply the Hazard Ranking System to a given facility. As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference that will make the document used for a given data point easier to find. Include the location of the document and consider appending a copy of the relevant page(s) for ease in review.

FACILITY NAME: Route 22 Eastside
NYSDEC ID No. 314032

LOCATION: Route 22 (South of Dover Village Shopping Center)
Dover Plains, New York 12522
Town of Dover, Dutchess County

DATE SCORED: 22 August 1989

PERSON SCORING: Maritza Montesinos-Gross

PRIMARY SOURCE(S) OF INFORMATION (e.g., EPA region, state, FIT, etc.):

USEPA Region 2, Edison, New Jersey
NYSDEC Region 3, New Paltz, New York
NYSDEC Central Office, Albany, New York
NYSDOH, Albany, New York
Dutchess County DOH, Poughkeepsie, New York
Interview with site owners
LMS library literature
NUS Corporation, Edison, New Jersey
Town of Dover files

FACTORS NOT SCORED DUE TO INSUFFICIENT INFORMATION:

S_{FE} - The site has not been certified as a threat by a state or local fire marshal, and field instrument readings do not demonstrate a fire or explosion threat.

COMMENTS OR QUALIFICATIONS

Although S_M and S_{DC} were scored, hazardous waste quantity and characteristics are unknown. No evidence exists to verify alleged hazardous waste disposal on-site.

GROUNDWATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

No groundwater sampling data available.
Score = 0

Rationale for attributing the contaminants to the facility:

N/A

* * *

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifer(s) of concern:

Unconsolidated surficial deposits 100 ft thick with a 10-15 gpm yield. These deposits overlie the Stockbridge Limestone bedrock unit 1000 ft thick and yields about 22 gpm.
Ref. 1

Depth(s) from the ground surface to the highest seasonal level of the saturated zone [water table(s)] of the aquifer of concern:

Water table may be at or near surface during wet periods. Depth to water about 6 ft in surficial deposits. Bedrock unit is 100 ft below surface.
Refs. 1, 2 and 3

Depth from the ground surface to the lowest point of waste disposal/storage:

Unknown, Landfill was used for 10 years and covers less than 2 acres. Assume no more than 5-ft depth.
Refs. 2 and 3

Depth from lowest point of waste disposal/storage to the highest seasonal level of the saturated zone of the aquifer of concern (subtract the above figures):

0 to 6 ft. In the 0 to 20 ft category.
Assigned Value = 3

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

40-45 in. (about 45)
Ref. 4

Mean annual lake or seasonal evaporation (list months for seasonal):

About 30 in.
Ref. 4

Net precipitation (subtract the above figures):

15 in.
Score = 3

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

Copake gravelly loam, mainly sand and gravel some clay.
Ref. 5

Permeability associated with soil type:

10^{-3}-10^{-4} cm/sec
Refs. 1, 5, and 6
Score = 2

Physical State

Physical state of substances at time of disposal (or at present time for generated gases):

Household refuse - solid.
Refs. 2 and 3
Score = 1

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Landfill has no liner or runoff controls, surface encourages ponding.
Refs. 2 and 3
Score = 3

Method with highest score:

Landfill with no liner or runoff controls, surface encourages ponding.
Ref. 6
Score = 3

* * *

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

No record of hazardous waste disposed on site.
Ref. 2

Compound with highest score:

Not applicable

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

Not suspected of having any hazardous waste
Ref. 2

Basis of estimating and/or computing waste quantity:

No estimates of volume have been reported.
Ref. 2

* * *

5 TARGETS

Groundwater Use

Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:

Dover Plains uses municipal well water and supplemental surface water all others use private well water.
Refs. 1, 2, 7, and 8
Score = 2

Distance to Nearest Well

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:

Dover Village Shopping Center north of site. Homes along Nellie Hill Road Northeast, east and southeast of site.
Refs. 2 and 9

Distance to above well or building:

Dover Village Shopping Center within 400 ft and homes along Nellie Hill within 1000 ft
Ref. 9
Score = 4

Population Served by Groundwater Wells Within a 3-Mile Radius

Identified water supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:

Dover Community Well water serve less than 1000 people, Powell Road Mobile Trailer Park serves about 115 people. Private homes roughly 190 people.
Refs. 7, 9, and 10

Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre):

Unknown

Total population served by groundwater within a 3-mile radius:

1300 people
Score = 3
Matrix Value = 30

SURFACE WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

No surface water sampling data available.
Score = 0

Rationale for attributing the contaminants to the facility:

N/A

* * *

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

Northern and central area about 1% slope, Southwest, south, and southeast borders have steep >20%.
Refs. 9

Name/description of nearest downslope surface water:

Seven Wells Brook a drinking water source is 350 ft north of the site.
Refs. 9 and 11

Average slope of terrain between facility and above-cited surface water body in percent:

>1% slope run-off from site drains into the Seven Wells Brook following heavy precipitation.
Ref. 9
Score = 2

Is the facility located either totally or partially in surface water?

Yes, the area of disposal lies in a lowlying area containing some standing water and marsh flora (slightly marshy, less than it was prior to disposal).
Refs. 2 and 9

Is the facility completely surrounded by areas of higher elevation?

No, of the three sides, two sides are of higher elevation: the southeast and southwest borders.
Refs. 2 and 9

1-Year 24-Hour Rainfall in Inches

2.7 in.
Ref. 12
Score = 2

Distance to Nearest Downslope Surface Water

350 ft north of site is Seven Wells Brook
Ref. 9
Score = 3

Physical State of Waste

Solids (household refuse and ashes from the burning of the refuse).
Ref. 2
Score = 1

* * *

3 CONTAINMENT

Method(s) of waste or leachate containment evaluated:

Landfill, adequate cover, unsound diversion system.
Ref. 2

Method with highest score:

Landfill, adequate cover, unsound diversion system.
Ref. 2
Score = 1

* * *

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

No record of hazardous waste ever being disposed of at site.
Ref. 2

Compound with highest score:

N/A

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

No suspicion of hazardous waste.
Ref. 2

Basis of estimating and/or computing waste quantity:

No estimates of volume have been reported.
Ref. 2

* * *

5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

Seven Wells Brook - NYS Class A, drinking water
Stone Church Brook - NYS Class C, fishing, contact recreation
Tenmile River - NYS Class C, fishing, contacted recreastion.
Refs. 1, 8, 11, and 13
Score = 3

Is there tidal influence?

No

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

None.
Ref. 9
Score = 0

Distance to 5-acre (minimum) freshwater wetland, if 1 mile or less:

3320 ft north of the site. In the 1/4 to 1 mile category.
Ref. 14
Score = 1

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:

None.
Ref. 15
Score = 0

Population Served by Surface Water

Location(s) of water supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

Seven Wells Brook supplements municipal system, assume it to be 10% therefore less than 100 people. Location of intake unknown will assume within 2000 ft.
Refs. 1, 7, and 13

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre):

Unknown

Total population served:

About 100.

Name/description of nearest of above water bodies:

Seven Wells Brook, a drinking water source.

Distance to above-cited intakes, measured in stream miles:

Assume within 2000 ft.
Score = 10

AIR ROUTE

1 OBSERVED RELEASE

Contaminants detected:

No air sampling analytical data available other than air quality measured by HNU and CGI. Readings within background level.
Ref. 2
Score = 0

Date and location of detection of contaminants:

None detected.
Monitored during site inspections with HNU and CGI on 1 September 1988 and 5 October 1983.
Ref. 2

Methods used to detect the contaminants:

HNU - photoionization.
CGI - combustible gas indicator ECOTOX.
Ref. 2

Rationale for attributing the contaminants to the site:

N/A

* * *

2 WASTE CHARACTERISTICS

Reactivity and Incompatibility

N/A. No record of hazardous waste ever disposed of on site.
Ref. 2

Most incompatible pair of compounds:

N/A

Toxicity

N/A

Hazardous Waste Quantity

Total quantity of hazardous waste:

Not suspected of containing any hazardous waste except common household chemicals. No estimates of volume have been reported.
Ref. 2

Basis of estimating and/or computing waste quantity:

N/A

* * *

3 TARGETS

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0-4 mi 0-1 mi 0-1/2 mi (0-1/4 mi)

1200 counting building on USGS map and multiplying by 3.8 and accounting for growth.
Refs. 9 and 10
Score = 18

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

None.
Ref. 9
Score = 0

Distance to 5-acre (minimum) freshwater wetland, if 1 mile or less:

3320 ft north of site, within 1/4 to 1 mile.
Ref. 14
Score = 1

Distance to critical habitat of an endangered species, if 1 mile or less:

None known.
Ref. 15
Score = 0

Land Use

Distance to commercial/industrial area, if 1 mile or less:

Dover Village Shopping Center within 0.1 miles
Grand Union within 0.1 miles.
Refs. 2 and 9
Score = 3

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

None known.

Distance to residential area, if 2 miles or less:

North, northeast, east, southeast and south within 0.2 miles.
Refs. 2 and 9
Score = 3

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Farms were seen in the area during the LMS site visit. It will be assumed that prime soils are an indication of farms in the area. The nearest prime soil (not including on-site) is within 2000 ft. In the 1/4 to 1/2 mile category.
Ref. 16
Assigned Value = 2

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Prime soils on-site are suspected not to have been used within the past 5 years. Therefore, the closest off-site prime soils will be used. They are less than 2000 ft to the northeast, east, and southeast. In the <0.5 mile category.
Ref. 16
Assigned Value = 3

Is a historic or landmark site (National Register of Historic Places and National Natural Landmarks) within view of the site?

None within view. National Register (New York section) was reviewed.
Ref. 2
Assigned Value = 0

* * *

FIRE AND EXPLOSION

The Route 22 Eastside landfill has not been certified as a fire and explosion threat by a state or local fire marshal, nor did field measurements demonstrate a fire or explosion threat. Therefore, the fire and explosion route was not scored.

1 CONTAINMENT

Not certified as a threat by fire marshall nor are there any observation.

Hazardous substances present:

None known.

Type of containment, if applicable:

Not applicable.

* * *

2 WASTE CHARACTERISTICS

Direct Evidence

Type of instrument and measurements:

Not applicable.

Ignitability

N/A

Reactivity

Most reactive compound:

N/A

Incompatibility

Most incompatible pair of compounds:

N/A

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility:

None known.

Basis of estimating and/or computing waste quantity:

No estimates reported.

* * *

3 TARGETS

Distance to Nearest Population

Shopping Center within 0-50 ft.
Refs. 2 and 9
Score = 5

Distance to Nearest Building

Within 200 ft.
Refs. 2 and 9
Score = 2

Distance to Sensitive Environment

Distance to wetlands:

Wetland greater than 1000 ft.
Ref. 14
Score = 0

Distance to critical habitat:

Greater than 1/2 mile.
Ref. 15
Score = 0

Land Use

Distance to commercial/industrial area, if 1 mile or less:

Shopping centers and residential areas within 1/4 mile.
Refs. 2 and 9
Score = 3

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

None known.
Refs. 2 and 9
Score = 0

Distance to residential area, if 2 miles or less:

Within 0.1 miles.
Refs. 2 and 9
Score = 3

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Farms were seen in the area during the LMS site visit. It will be assumed that prime soils are an indication of farms in the area. The nearest prime soil (not including on-site) is within 2000 ft.
Refs. 2 and 16
Assigned Value = 2

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Prime soils on-site are suspected not to have been used within the past 5 years. Therefore, the closest off-site prime soils will be used. They are less than 2000 ft to the northeast, east, and southeast. In the <0.5 mile category.
Ref. 16
Assigned Value = 3

Is a historic or landmark site (National Register of Historic Places and National Natural Landmarks) within view of the site?

None within view. National Register (New York section) was reviewed.
Ref. 2
Assigned Value = 0

Population Within 2-Mile Radius

2250 people. In the 1001 to 3000 people category.
Ref. 9
Assigned Value = 3

Buildings Within 2-Mile Radius

592 buildings. In the 261 to 790 buildings category.
Ref. 9
Assigned Value = 3

* * *

DIRECT CONTACT

1 OBSERVED INCIDENT

Date, location, and pertinent details of incident:

None.
Ref. 2
Score = 0

* * *

2 ACCESSIBILITY

Describe type of barrier(s):

No fences or barriers.
Ref. 2
Score = 3

* * *

3 CONTAINMENT

Type of containment, if applicable:

Adequate soil cover.
Score 0

* * *

4 WASTE CHARACTERISTICS

<u>Toxicity</u>

Compounds evaluated:

None known.

Compound with highest score:

N/A.

* * *

5 TARGETS

Population within one-mile radius

1319
Ref. 9
Assigned Value = 3

Distance to critical habitat (of endangered species)

None known.
Ref. 15
Score = 0

5.5 HRS REFERENCES

HRS REFERENCES

[1] Ground-Water Resources of Dutchess County, New York. (Ref. 9, Appendix A, this report.)

[2] LMS site visit notes. 1 September 1988. (Ref. 1, Appendix A, this report.)

[3] NUS site visit notes. 5 October 1983. (Ref. 2, Appendix A, this report.)

[4] Climatic Atlas of U.S. (Ref. 14, Appendix A, this report.)

[5] Soil Survey of Dutchess County. (Ref. 13, Appendix A, this report.)

[6] U.S. Environmental Protection Agency (EPA). 1984. Uncontrolled Hazardous Waste Site Ranking System - A Users Manual.

[7] NYS Atlas of Community Water System Sources. 1982. (Ref. 15, Appendix A, this report.)

[8] Drainage basin. (Ref. 10, Appendix A, this report.)

[9] USGS map. (Ref. 5, Appendix A, this report.)

[10] 1980 Census. (Ref. 4, Appendix A, this report.)

[11] Standard/Classes. (Ref. 11, Appendix A, this report.)

[12] U.S. Department of Commerce. Rainfall Frequency Atlas of the United States. Tech. paper No. 400.

[13] Memo of conversation with Dover Water Works. (Ref. 16, Appendix A, this report.)

[14] Freshwater wetlands map. (Ref. 12, Appendix A, this report.)

[15] New York Rare Plants Status List. (Ref. 6, Appendix A, this report.)

[16] Letter from USDA Soil Conservation Service concerning prime soils. (Ref. 8, Appendix A, this report.)

REFERENCE 6

Uncontrolled Hazardous Waste Site Ranking System

A Users Manual
(HW-10)

Originally Published in
the July 16, 1982, *Federal Register*

United States
Environmental Protection
Agency

1984

REFERENCE 12

U.S. DEPARTMENT OF COMMERCE
LUTHER H. HODGES, Secretary

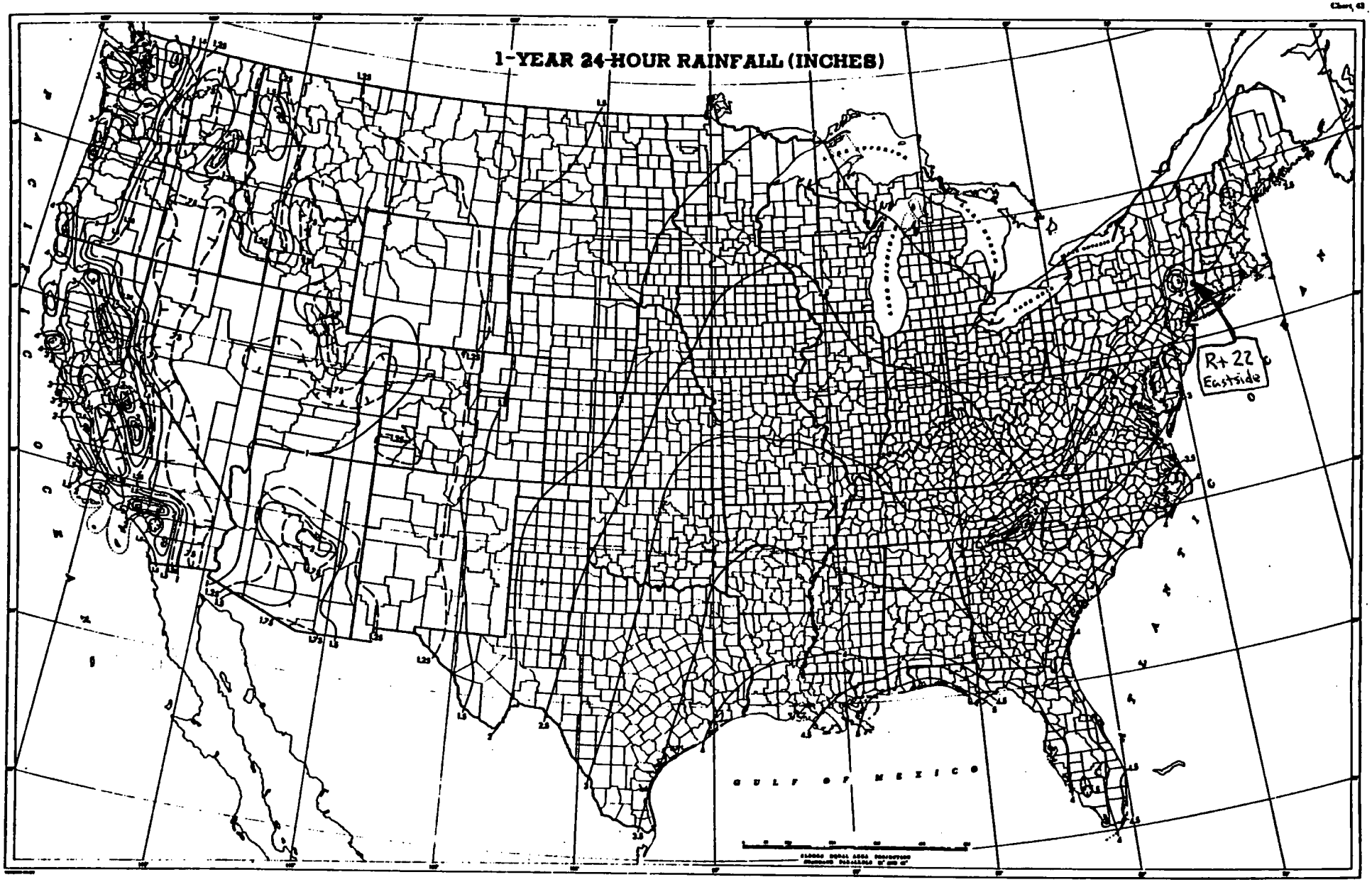
WEATHER BUREAU
F. W. REICHELDERFER, Chief

TECHNICAL PAPER NO. 40

RAINFALL FREQUENCY ATLAS OF THE UNITED STATES

for Durations from 30 Minutes to 24 Hours and Return Periods from 1 to 100 Years

Prepared by
DAVID M. HERSHFIELD
Cooperative Studies Section, Hydrologic Services Division
for
Engineering Division, Soil Conservation Service
U.S. Department of Agriculture



5.6 UPDATED EPA POTENTIAL HAZARDOUS WASTE SITE, SITE INSPECTION REPORT (FORM 2070-13)

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

EPA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D980508147

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Route 22 Eastside	Rt. 22, So. of Dover Village Shopping Ctr.

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Town of Dover	NY	12522	Dutchess	027	25

09 COORDINATES LATITUDE	LONGITUDE
41° 43' 58" N	73° 34' 40" W

10 TYPE OF OWNERSHIP (Check one)
■ A. PRIVATE ☐ B. FEDERAL _____ ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER _____ ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
9 / 1 / 88 (MONTH DAY YEAR)	☐ ACTIVE ■ INACTIVE	late 1940s (BEGINNING YEAR) | early 1960s (ENDING YEAR) ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)
☐ A. EPA ☐ B. EPA CONTRACTOR _____ (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR _____ (Name of firm)
☐ E. STATE ■ F. STATE CONTRACTOR LMS Engineers (Name of firm) ☐ G. OTHER _____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO
Maritza Montesinos-Gross	Environmental Engineer	LMS Engineers	(914) 735-8300
09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO
Mark G. Creager	Environmental Scientist	LMS Engineers	(914) 735-8300
			( )
			( )
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
Richard Rennia	Owner	Nellie Hill Road Dover Plains, NY 12522	(914) 877-3425
Robert Keller	Owner	Benson Hill Road Dover Plains, NY 12522	(914) 877-3574
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
■ PERMISSION ☐ WARRANT	0835 - 1040	Sunny, warm 70-77°F, light breeze

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Edward A. Maikish	LMS Engineers, Pearl River, NY 10965	(914) 735-8300

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Maritza Montesinos-Gross		LMS Engineers	914/735-8300	1 / 25 / 89 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D980508147

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)
- ■ A SOLID
- ☐ B POWDER, FINES
- ☐ C SLUDGE
- ☐ D OTHER _____ (Specify)
- ☐ E SLURRY
- ☐ F LIQUID
- ☐ G GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)
- TONS _____
- CUBIC YARDS ≤10,000
- NO. OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)
- ☐ A TOXIC
- ☐ B CORROSIVE
- ☐ C RADIOACTIVE
- ☐ D PERSISTENT
- ☐ E SOLUBLE
- ☐ F INFECTIOUS
- ☐ G FLAMMABLE
- ☐ H IGNITABLE
- ☐ I HIGHLY VOLATILE
- ☐ J EXPLOSIVE
- ☐ K REACTIVE
- ☐ L INCOMPATIBLE
- ■ M NOT APPLICABLE

III. WASTE TYPE Municipal Wastes

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
	According to the owners and town officials, only municipal waste was accepted at this landfill. There is no record of any hazardous waste ever being disposed of at the landfill.				

V. FEEDSTOCKS (See Appendix for CAS Numbers) None

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Mr. Richard Rennia, Site owner, 914/877-3425
Mr. Robert Keller, Site owner, 914/877-3574
NUS FIT II Site Inspection, 10-5-83
LMS NYSDEC Phase I Site Inspection, 9-1-88
DEC and DOH files

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D980508147

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____ 04 NARRATIVE DESCRIPTION

No recorded history. The site appears to have a good soil cover, therefore leachate generation is most likely low. During the site inspection no leachate had been observed.

01 ☐ B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____ 04 NARRATIVE DESCRIPTION

No recorded history. None observed during site inspections. Although there're 2 downgradient brooks within 600ft of the site, it's unlikely that there's leachate entering these surfacewaters. Leachate generation is probably low due to good soil cover.

01 ☐ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____ 04 NARRATIVE DESCRIPTION

No recorded history. Air monitoring equipment readings have been background. No exposed refuse has been observed during site inspections.

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____ 04 NARRATIVE DESCRIPTION

No potential exists. None observed. It was common practice during the active years of the landfill to conduct open burning on-site.

01 ☐ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____ 04 NARRATIVE DESCRIPTION

No potential exists. Although the site is not fenced in and is easily accessible to the public, the site has a good soil cover thereby preventing direct contact with the wastes.

01 ☐ F. CONTAMINATION OF SOIL — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ (Acres) 04 NARRATIVE DESCRIPTION

No recorded history. Approximately 1-2 acres of the site was utilized for disposal of municipal wastes for about 10 years.

01 ☐ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

No recorded history. Although drinking water supplies are within 0.5 miles of the landfill (as close as 0.02 mi.) it's highly unlikely that they have become significantly contaminated due to the nature and low leachate generation of the waste.

01 ☐ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

No potential exists. No recorded history. The site has been inactive for 25 years. During use, residents were responsible for transport of their own wastes.

01 ☐ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

No potential exists. No recorded history. Site has been inactive for 25 years and has an adequate soil cover.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D980509147

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J DAMAGE TO FLORA
04 NARRATIVE DESCRIPTION
02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED

No recorded history. None observed. Site well vegetated (lots of alfalfa). No evidence of stressed vegetation. Fill material has a good soil cover.

01 ☐ K DAMAGE TO FAUNA
04 NARRATIVE DESCRIPTION (Include name(s) of species.)
02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED

No recorded history. Fill material is well covered thereby limiting direct contact with fauna. Aquatic fauna also unlikely to be damaged due to probable low leachate generation. No leachate observed during site inspection.

01 ☐ L CONTAMINATION OF FOOD CHAIN
04 NARRATIVE DESCRIPTION
02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED

No recorded history. Highly unlikely due to the probable low leachate generation. No leachate observed.

01 ☐ M UNSTABLE CONTAINMENT OF WASTES (Spills Runoff Standing liquids Leaking drums)
02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____
04 NARRATIVE DESCRIPTION

None observed. There is no known liner for the landfill, however the soil cover is good therefore leachate generation is low. No leachate observed during site inspection.

01 ☐ N DAMAGE TO OFFSITE PROPERTY
04 NARRATIVE DESCRIPTION
02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED

No potential exists. No recorded history. None observed.

01 ☐ O CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs
04 NARRATIVE DESCRIPTION
02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED

No recorded history. None observed.

01 ☐ P ILLEGAL/UNAUTHORIZED DUMPING
04 NARRATIVE DESCRIPTION
02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED

No recorded history. None observed.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

None.

III. TOTAL POPULATION POTENTIALLY AFFECTED: None

IV. COMMENTS

The municipal wastes were disposed of on <2 acres of a 10 acre tract in a lowlying wetland. Additional soil for the cover has been placed by the current owners. The town at the time the site was active supported 2 rubber plants, a furniture manufacturer and possibly a magnesium plant.

V. SOURCES OF INFORMATION (Cite specific references e g , state files, sample analysis, reports)

NUS FIT II, Site Inspection, 10-5-83.
LMS, NYSDEC Phase I Site Inspection, 9-1-88.
Richard Rennia, Owner 914/877-3425.
Robert Keller, Owner 914/877-3574

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D980508147

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☐ G. STATE (Specify)				
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
☒ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
☐ B. PILES		
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☒ F. LANDFILL	unknown	
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ I. OTHER (Specify)		

04 TREATMENT (Check all that apply)

- ☒ A. INCENERATION open burn'g
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- ☐ G. OTHER RECYCLING/RECOVERY
- ☒ H. OTHER no treatment (Specify)

05 OTHER

☐ A. BUILDINGS ON SITE

none

06 AREA OF SITE

<2 (Acres)

07 COMMENTS

Municipal wastes were disposed of on ≈ 2 acres of a 10 acre tract of which a portion is currently developed as the Dover Village Shopping Center. Open-burning was common practice on site. Currently site is well covered and vegetated.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☐ A. ADEQUATE, SECURE ☒ B. MODERATE ☐ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC

There is no known liner. There is a good soil cover.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE ☐ YES ■ NO

02 COMMENTS

The site is not fenced, therefore easily accessable. However, site has good soil cover.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

NUS FIT II Site Inspection 10-5-83
LMS, NYSDEC Phase I Site Inspection 9-1-88
Richard Rennia, Owner, 914/877-3425
Robert Keller, Owner, 914/877-3574

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D980508147

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL
COMMUNITY	A. ☐	B. ■
NON-COMMUNITY	C. ☐	D. ■

02 STATUS

ENDANGERED	AFFECTED	MONITORED
A. ☐	B. ☐	C. ■
D. ☐	E. ☐	F. ☐

03 DISTANCE TO SITE

A. 0.47 (mi)
B. 0.67 (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☐ A. ONLY SOURCE FOR DRINKING ☒ B. DRINKING (Other sources available); COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available) ☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available) ☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER 1300 within 3 mi.

03 DISTANCE TO NEAREST DRINKING WATER WELL <0.10 (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
6 (ft)	NNW	20-25 (ft)	high (gpd)	☐ YES ☒ NO

09 DESCRIPTION OF WELLS (including useage, depth, and location relative to population and buildings): NNW of site within 0.47 mi is the Dover Water Co. well serving <1000 residents of the Dover Plains Village (including Grand Union) which taps into the bedrock (depth >100 ft) North of site within 0.1 mi is the Dover Village Shopping Center well and east within 0.2 mi are private wells for the homes along Nellie Hill Rd., which may tap the surficial deposits

10 RECHARGE AREA

☐ YES ■ NO

COMMENTS:

11 DISCHARGE AREA

■ YES ☐ NO

COMMENTS: Site lies in the Housatonic River drainage basin and is part of the Tenmile River Valley

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☒ A. RESERVOIR, RECREATION DRINKING WATER SOURCE ☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES ☐ C. COMMERCIAL, INDUSTRIAL ☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME	AFFECTED	DISTANCE TO SITE
Seven Wells Brook, NYS Class A, north of site	☐	<0.1 (mi)
Stone Chruck Brook, NYS Class C, north of site	☐	0.1 (mi)
Tenmile River, NYS Class, east of site	☐	0.57 (mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. 1319 NO OF PERSONS	B. 2250 NO OF PERSONS	C. 5062 NO OF PERSONS

02 DISTANCE TO NEAREST POPULATION

0.2 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE

592

04 DISTANCE TO NEAREST OFF-SITE BUILDING

0.02 (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

The site is located on the outskirts (so.) of Dover Plains a sparcely populated, rural village, part of the Town of Dover with a population in 1980 of 7261 in 56 mi^2. The center of the village of Dover Plains is within 3/4 mi north of the site, within a 3 mi radius 75% of the population is found in the northern semi-circle.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION
01 STATE: NY | 02 SITE NUMBER: D980509147

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A $10^{-6} - 10^{-8}$ cm/sec ☐ B $10^{-4} - 10^{-6}$ cm/sec ■ C. $10^{-4} - 10^{-3}$ cm/sec ☐ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☐ A IMPERMEABLE (Less than 10^{-6} cm/sec) ☐ B RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ■ C. RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☐ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH	
90-110 (ft)	unknown (ft)	5.0-7.5	

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
15 (in)	2.5-3.0 (in)	0-3 %	North	0-25 %

09 FLOOD POTENTIAL
SITE IS IN _____ YEAR FLOODPLAIN

10
☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE	OTHER
A n/a (mi)	B 1 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)
none within 10 (mi)
ENDANGERED SPECIES: _____

13 LAND USE IN VICINITY

DISTANCE TO COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AG LAND
A. <0.1 (mi)	B. 0.2 (mi)	C. — (mi)	D. — (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The site itself is relatively flat in a lowlying wetland with surrounding topography steep and hilly. The site is part of a 10 acre tract of which part has been developed into the Dover Village Shopping Center which is 0.1-ft north of the fill area. The site is located near the base of Nellie Hill and West Mountain in the valley commonly called the Harlem Valley which is part of the Ho satonic River drainage basin. North of the site within 500-ft are two brooks which feed into the Tenmile River within 0.5 mi east of the site which eventually drains into the Ho satonic River in CT. The nearest private homes are located within 0.2 miles NE, E, and SE of the site on Nellie Hill Rd. The topsoil is made up of copake gravelly loam. The bedrock underlying the topsoil is comprised of grey to white limestone and dolomite metamorphosed to marble.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

NUS FIT II Site Inspection 10-5-83
LMS, NYSDEC Phase I Site Inspection 9-1-88
Richard Rennia,Owner, 914/877-3425
Robert Keller, Owner 914/877-3574

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D980508147

II. SAMPLES TAKEN No samples were taken

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER			
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL			
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
Air Quality	HNU Photoionization Detector: No measurements above background.
Air Quality	EXOTOX: No measurements above background.

IV. PHOTOGRAPHS AND MAPS

01 TYPE ■ GROUND □ AERIAL

02 IN CUSTODY OF LMS Engineers
(Name of organization or individual)

03 MAPS ■ YES □ NO

04 LOCATION OF MAPS See attachments

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

No other field data collected.

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

NUS FIT II Site Inspection 10-5-83
LMS, NYSDEC Phase I Site Inspection 10-5-88
Richard Rennia, Owner, 914/877-3425
Robert Keller, Owner, 914/877-3574

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D980508147

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
Richard Rennia		Nellie Hill Road		Dover Plains	NY	12522
Robert Keller		Benson Hill Road		Dover Plains	NY	12522

PARENT COMPANY (If applicable)

08 NAME	09 D+B NUMBER	10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE	12 CITY	13 STATE	14 ZIP CODE

III. PREVIOUS OWNER(S) (List most recent first)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
Dave Farrell		unknown				

IV. REALTY OWNER(S) (If applicable, list most recent first)

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D980508147

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME	02 D+B NUMBER
Site is inactive	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER

OPERATOR'S PARENT COMPANY (If applicable)

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

01 NAME	02 D+B NUMBER
Town of Dover	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
Rural Rt. #2, Box 212	

05 CITY	06 STATE	07 ZIP CODE
Wingsdale	NY	12594

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD
±10	Dave Farrell

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

NUS FIT II Site Inspection 10-5-83
LMS, NYSDEC Phase II Site Inspection 9-1-88
Richard Rennia, Owner 914/877-3425
Robert Keller, Onwer 914/877-3574

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D980508147

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE

Site is an inactive municipal landfill. The residents of the town of Dover, NY were the generators of the waste. The residents transported their own wastes.

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

NUS FIT II Site Inspection 10-5-83
LMS, NYSDEC Phase I Site Inspection 9-1-88
Richard Rennia, Owner, 914/877-3425
Robert Keller, Owner 914/877-3574

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ D. SPILLED MATERIAL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ E. CONTAMINATED SOIL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ F. WASTE REPACKAGED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ G. WASTE DISPOSED ELSEWHERE — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ H. ON SITE BURIAL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ I. IN SITU CHEMICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ J. IN SITU BIOLOGICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ K. IN SITU PHYSICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ L. ENCAPSULATION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ M. EMERGENCY WASTE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ N. CUTOFF WALLS — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ P. CUTOFF TRENCHES/SUMP — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ Q. SUBSURFACE CUTOFF WALL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE: NY	02 SITE NUMBER: D980508147

II PAST RESPONSE ACTIVITIES (Continued)

01 ☐ R BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☒ S CAPPING/COVERING — 02 DATE present — 03 AGENCY n/a
04 DESCRIPTION
Current owners have brought in soils and have covered the fill area in addition to original closure.

01 ☐ T BULK TANKAGE REPAIRED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ U GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ V BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ W GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ X FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ Y LEACHATE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ Z AREA EVACUATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ 1 ACCESS TO SITE RESTRICTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ 2 POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ 3 OTHER REMEDIAL ACTIVITIES — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

none

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

NUS FIT II Site Inspection 10-5-83
LMS, NYSDEC Phase I Site Inspection 9-1-88
Richard Rennia, Owner 914/877-3425
Robert Keller, Onwer 914/877-3574

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NY	D980508147

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ■ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

none

III SOURCES OF INFORMATION *(Cite specific references, e g , state files, sample analyses, reports)*

NUS FIT II Site Inspection 10-5-83
LMS, NYSDEC Phase I Site Inspection 9-1-88
Richard Rennia, Owner 914/877-3425
Robert Keller, Owner 914/877-3574

EPA FORM 2070-13 (7-81)

CHAPTER 6

DATA ADEQUACY AND RECOMMENDATIONS

6.1 ADEQUACY OF DATA

No analytical data are available for this site. However, an HNU (a photoionization detector [PID] and the Neotronics Exotox 40 (combustible gas indicator [CGI]/explosimeter) were used to evaluate air quality during LMS' site visit on 1 September 1988. Neither instrument indicated air quality problems. All measurements were at or below background levels.

6.2 RECOMMENDATIONS

The site inspection revealed no evidence of contaminant release to the environment. The site was well vegetated, and there was no sign of stressed vegetation. No leachate or waste was visible and no odors were present. In addition, there is no record or suspicion of any hazardous waste ever being disposed of on-site. As the current owners have put down additional soil cover, probable contact with solid wastes is reduced. Even with this lack of analytical data, it is recommended that the site be a candidate for delisting and that NYSDEC take no further action. If additional information is needed before the site can be delisted, it is recommended that one or two soil borings samples be collected through the fill and analyzed for hazardous parameters.

APPENDIX A

REFERENCES AND DATA SOURCES

APPENDIX A

REFERENCES AND DATA SOURCES

[1] LMS site visit, including air monitoring. 1 September 1988.

[2] NUS Corp. 15 October 1983. Field Notes - site visit, EPA Forms 2070-12 and 13, and site maps.

[3] NYSDEC - EPA Preliminary Assessment (Form 2070-2).

[4] U.S. Department of Commerce, Bureau of the Census. 1983. Town of Dover census. County and City Data Book. p. 882.

[5] USGS map and population estimate.

[6] Clemants, S.E. (ed.). February 1989. New York Rare Plant Status List. New York Natural Heritage Program.

[7] File review of significant habitats.

[8] U.S. Department of Agriculture, Soil Conservation Service. 9 August 1989. Letter concerning soils.

[9] Simmons, E.T., Grossman, I.G., and Heath, R.C. 1961. Ground-Water resources of Dutchess County, New York. U.S. Geological Survey in cooperation with New York Water Resources Commission.

[10] Official Compilation of Codes, Rules and Regulations. October 1982. NYS Department of State.

[11] Official Compilation of Codes, Rules and Regulations. October 1985. Part 701.

[12] NYS freshwater wetlands map.

[13] U.S. Department of Agriculture, Soil Conservation Service. December 1955. Soil Survey, Dutchess County, New York.

[14] Climatic Atlas of the United States. Precipitation and evaporation maps.

[15] NYS Atlas of Community Water System Sources. 1982. NYSDOH Division of Environmental Protection, Bureau of Public Water Supply Protection. pp. 66, 67.

[16] September 1989. Memo of conversation with S. Mankin, Dover Plains Water Works.

REFERENCE 1

SITE VISIT OF ROUTE 22 EASTSIDE
1 September 1988

#314032

LMS PERSONNEL:

Maritza Montesinos-Gross, Environmental Engineer
Mark G. Creager, Geochemist

DOVER PERSONNEL:

Richard Rennia, Owner
Robert Keller, Owner

Arrived at site 8:10 a.m. Waited for Mark and owners to arrive. Mark arrived at the site 8:35 a.m. We warmed up the instruments and calibrated them until the owners arrived. An HNU and Exotox meters were used to monitor the air. Owners arrived at the site 9:50 a.m.

WEATHER:

Cloudless, sunny, about 70°F and rising. During the early morning it was cool, by afternoon it was quite warm.

BRIEF SITE HISTORY:

It was a small town dump. Mostly household garbage: paper, trees, leaves, grass, food leftovers, etc. Prior to the use of the landfill the residents of Dover, mainly farmers, had their own dump in each of their back yards. Everyone handled their own wastes. Waste was generally burned in pits in the backyards. The waste and ashes were then covered with soil. In the mid-1940s, the town decided to have a central location for everyone to dispose of their refuse. The Rt 22 eastside was chosen. There were no commercial carters at that time. Each resident was responsible for their own garbage. Open burning was often practiced at this site. Generally waste was covered with soil to prevent infestations of rats and flies. The site was used for about 10 years. It was closed around the 1950's (?). Landfill was about 1 to 2 acres.

Present owners have cleared the site of trees, railroad and Rt 22 embankment dug further back to present position. Soils from construction sites in the area, from the RR embankment and Rt 22 embankment excavations were used to fill in the marshy area and cover the dump some more. Dump had been extended slightly into the marsh areas. Access road to old dump was off Route 22. The marsh and landfill were leveled.

PRESENT SITE CONDITIONS:

The RR embankment to the east-southeast and the Rt 22 embankment to the west-southwest are steep. Center and northern areas of the landfill are rather flat. At the foot of the embankments to the south there is a ditch with standing water. Ditch runs along the base of the Rt 22 embankment and to the south embankment. Along the northern border is the Dover Village Shopping Center consisting of about 4 separate buildings and a surrounding parking lot. Along the eastern border is a railroad. A row of trees separates the site from the RR. Beyond the railroad to the west is a cemetery. Along the base of the RR embankment several test pits were conducted. A dirt road led from the RR to the site (southeast end). The remnants of the gravel road used for the landfill were found by the bend in the road (Rt 22). Just north of the shopping center was a stream that ran under Rt 22 and flowed west. Across the street (Rt 22) northwest of the site was another shopping center (Grand Union and bank). The site was well vegetated and no signs of stressed vegetation were visible. Marsh flora observed in the area of the standing water. No oil sheen or discoloration of the soil was observed. A mound of soil located in the center of the flat area of the site was well vegetated. Mound of soil was from off-site construction sites. It was to have been spread over the site 1-2 yrs ago. (See attached sketch.)

INSTRUMENT READINGS:

No HNU or Exotox readings above background during site visit. (See attached data sheet.)

MISCELLANEOUS:

An area resident with whom we spoke later in the day mentioned that one of the buildings of the shopping center required piers to be built because it started to sink. Also that the shopping center had its own well.

LAWLER, MATUSKY & SKELLY ENGINEERS
ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS
ONE BLUE HILL PLAZA
POST OFFICE BOX 1509
PEARL RIVER, NEW YORK 10965

BY _____ DATE _____ SHEET NO. _____ OF _____

CHKD. BY _____ DATE _____ JOB NO. _____

SUBJECT SITE VISIT OF ROUTE 22 Eastside
1 September 1988
#314032

LMS Personnel:

Maritza Montesinos-Gross, Environmental Engineer

Mark G. Creager, Geochemist

Dover Personnel:

Richard Rennia, owner

Robert Keller, owner

Arrived at site 8:10 AM. Waited for Mark and owners to arrive. Mark arrived at the site 8:35 AM. We warmed up the instruments and calibrated them until the owners arrived. An HNU and Exotox meters were used to monitor the air. Owners arrived at the site 9:50 AM

Weather:

Cloudless, sunny, about 70°F and rising. During the early morning it was cool, by afternoon it was quite warm.

Brief Site History:

It was a small town dump. Mostly household garbage: Paper, trees, leaves, grass, food leftovers, etc. Prior to the use of the landfill the residents of Dover, mainly

farmers, had their own dump in each of their backyards. Everyone handled their own wastes. Waste was generally burned in pits in their backyards, ~~and~~ The waste and ashes were then covered with soil. In the mid-1940s the town decided to have a central location for everyone to dispose of their refuse. The Rt 22 eastside was chosen. There were no commercial carters at that time. Each resident was responsible for ~~their~~ own garbage. Open burning was often practiced at this site. Generally waste was covered with soil to prevent infestations of rats and flies. The site ~~last~~ ed about 10 years. It was closed around the 1950's (?). Landfill was about 1 to 2 acres.

Present owners have cleared the site of trees, railroad and Rt 22 embankment ~~dug~~ ~~for~~ further back to present position. Soils from construction sites in the area, from the RR ~~embankment~~ and Rt 22 embankment excavations were used to fill in the marshy area and cover the dump some more. Dump had been extended slightly into the marsh areas. Access road to old dump was off Rt 22. The marsh and landfill were leveled.

LAWLER, MATUSKY & SKELLY ENGINEERS
ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS
ONE BLUE HILL PLAZA
POST OFFICE BOX 1509
PEARL RIVER, NEW YORK 10965

BY _____ DATE _____ SHEET NO. _____ OF _____

CHKD. BY _____ DATE _____ JOB NO. _____

SUBJECT _____

Present Site Conditions:

The RR embankments to the east ~~and~~ southeast and the Rt 22 embankment to the west ~~and~~ southwest are steep. Center and northern areas of the landfill are rather flat. At the foot of the embankments to the south there is a ditch with standing water. Ditch runs along the base of the Rt 22 embankment and to the south embankment. Along the northern border is the Dover Village Shopping Center consisting of about 4 separate buildings and a surrounding parking lot. Along the eastern border is a railroad. A row of trees separates the site from the RR. Beyond the railroad to the west is a cemetery. Along the base of the RR embankment several test pits ~~and~~ were conducted. A dirt road led from the RR to the site (southeast end). The remnants of the gravel road used for the landfill was found by the bend in the road (Rt 22). Just North of the Shopping center was a stream that ran under Rt 22 and flowed west. Across the street (Rt 22) northwest of the site was another shopping center. (Grand Union). The site
at bank

was well vegetated and no signs of stressed vegetation ~~was~~ visible. Marsh flora observed in the area of the standing water. No oil sheen or discoloration of the soil was observed. A mound of soil located in the center of the flat area of the site was well vegetated. Mound of soil was from off-site construction sites; It was to have been spread over the site 1 to 2 yrs ago. (See Attached Sketch)

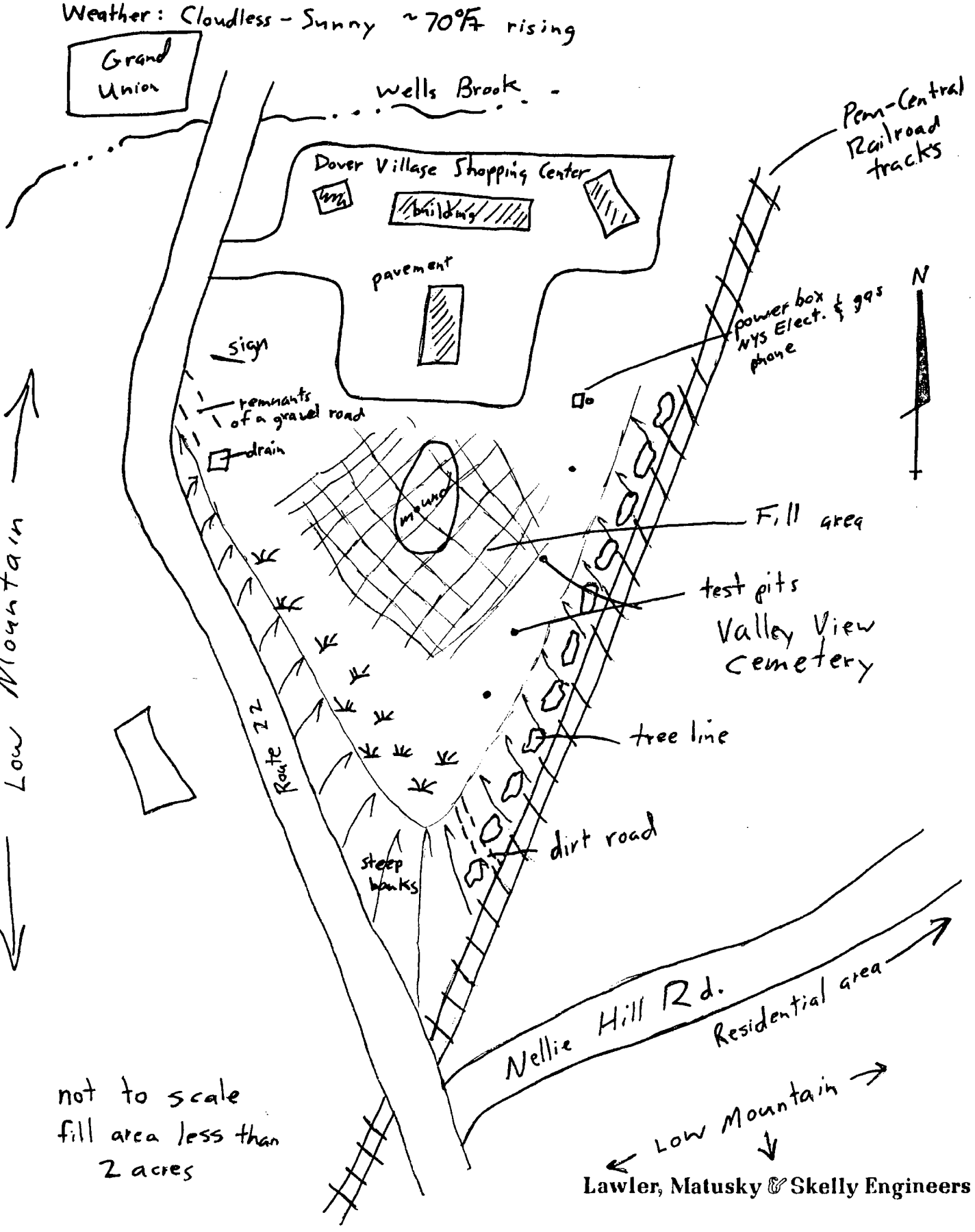
Instrument Readings:

No HNU or Exotox readings above background during site visit. (See attached data sheet)

Miscellaneous:

~~Be~~A resident in the area with whom we spoke to later in the day mentioned that one of the buildings of the shopping center required piers to be built because it started to sink. Also that the shopping center had its own well.

Jh Montesano Jr
9/1/88


Weather: Cloudless - Sunny ~70°F rising
Grand Union
Wells Brook
Dover Village Shopping Center
building
pavement
sign
remnants of a gravel road
drain
mound
Penn-Central Railroad tracks
power box NYS Elect. & gas phone
N
Fill area
test pits
Valley View Cemetery
tree line
dirt road
steep banks
Route 22
Low Mountain
Nellie Hill Rd.
Residential area
Low Mountain
not to scale
fill area less than 2 acres
Lawler, Matusky & Skelly Engineers

Job No: 576-021
Site: Route 22 Eastside
Re #: 314032 Site #
Crew: MMG MGC

LAWLER, MATUSKY & SKELLY ENGINEERS
DAILY HEALTH & SAFETY REPORT
DATA SHEET

H.Nu Meter:
OVA Meter:
Explosimeter:
Date: 1 Sept 88

TIME	SAMPLE LOCATION	H.NU READING	EXPLOSIMETER READING	OVA READING	COMMENTS
10:00	Parking lot Northern border	0	TOX - 1 TWA - 0		Background
			EXP - 0% OXY - 20.9		
10:10	NE Corner Power Box				Same as background
10:20	Middle of East border				Same as Background
10:35	South end				Same as Background
10:45	Middle of west border				Same as Background
10:50	Drain				Same as Background
11:00	Mound				Same as Background

Calibration:
8:50 AM 9/1/88
Battery check > OK
HNU - 57 ppm observed
57 ppm expected
Zero 0

On-Site Health & Safety Officer and/or Crew Chief:
(Signature) [signature]
(Date) 1 Sept 88

REFERENCE 2

NUS Corp. Field Notes

Site Visit 10/5/83

OTTO SPROSSEL - SUPERVISOR
RICHARD RENNIA - COUNCILMAN
GEORGE MORSE - COUNCILMAN

ART CLARK - SAFFEY
ED MCTIERNAN - PHOTOGRAPHER
MARTIN O'NEILL - PM

9:35

7 1acre

CLOSED LATE 50's EARLY 60's
USED 10 YRS +
MUNICIPAL

RAWLING RUBBER CO } INDUSTRY FORMERLY
RICHARD RUBBER } IN TOWN

DOVER Furniture

TRUMBALL BOX - ARMENIA INDUSTRY

FILL PROCESS

TALK to { CHARLIE SHAW - Milbrook Farm + Home Center

(VACANT)

6 ft to WATER -

TOWN HAS WATER SUPPLY + WELLS
50 ft WELLS

ROBERT KELLER + RICHARD REMIA
NOW OWNED.

DAVE FARRELL OWNED
DURING DISPOSAL

MAGNESIUM PLANT IN TOWN

1010 DEPART SITE

Mirtha J. O'Neill 10/5/93

No exposed refuse in former fill area, western edge supports ample vegetation. Soil ~~at~~ site is moderately well drained

CO Mitt 10/5/93

ON 10-5-83 FIT PERSONNEL MARTIN O'NEILL, EDWARD McTIERNAN, AND ARTHUR CLARKE MET with MEMBERS of THE TOWN of DOVER COUNCIL IN REFERENCE TO THE TOWN of DOVER LANDFILL ON RT. 22 (ACROSS FROM GRAND UNION) IN DOVER TOWNSHIP, NY.

FIT PERSONNEL AND DUTIES:

MARTIN O'NEILL : FIELD NOTES
EDWARD McTIERNAN : AIR MONITORING
ART CLARKE : PHOTOGRAPHER

DOVER PERSONNEL :

OTTO SPROSSEL: TOWN of DOVER SUPERVISOR
RICHARD RENIA : COUNCILMAN
GEORGE MORSE : COUNCILMAN

FIT AND DOVER officials BEGAN THE SITE INSPECTION AT 935. THE ACTUAL AREA USED FOR A LANDFILL CONSISTED of 1 - 1.5 ACRES

Mr. Rennia informed FIT that the site was used for approximately 10 years, and the closure date ~~is~~ was in the late 1950's ~~&~~ or early 1960's. The site was used for municipal refuse.

Dover officials explained that the town was the location of Fanling Rubber Co. and Richard Rubber Co. These two industrial facilities have closed their operations down in Dover. The Dover officials did not believe that any of the industries in town utilized this landfill for disposal. Currently the only industry in Dover is the Dover Furniture Plant.

The process by which the facility was filled was excavation - fill.

Mr. Sprossel informed FIT that the site was owned by a Mr. Dave Farrell during the

TIME THAT DISPOSAL WAS OCCURING. Mr. FARRELL is FROM the TOWN of DOVER NY CURRENTLY THE SITE IS JOINTLY OWNED by Mr. ROBERT KELLER of DOVER AND Mr RICHARD RENNIA COUNCILMAN of DOVER.

Mr. MORSE INFORMED FIT THAT DEPTH TO WATER IN THE AREA is APPROXIMATELY 6 FEET. THE TOWN of DOVER HAS A PUBLIC WATER SUPPLY for 1/2 of THE TOWN'S POPULATION THE OTHER RESIDENCES HAVE PRIVATE WELLS of APPROXIMATELY 50 ft.

DOVER officials informed FIT THAT A MAGNESIUM PLANT OPERATED IN DOVER from approximately ~~first~~ MON 1940 - 1950. THE officials DID NOT BELIEVE THAT THIS SITE WAS UTILIZED by the PLANT FOR DISPOSAL of ANY WASTES.

This SITE IS CURRENTLY A TILLED FIELD. ALFAFA IS PLANTED ON THE FILLED AREA. NO ~~REF~~ EXPOSED REFUSE OR EVIDENCE OF REFUSE EXISTS AT THE SITE. THE TRACT OF LAND WHICH THE FORMER FILL AREA IS A PART OF IS ALSO SUBDIVIDED AND DEVELOPED AS A SMALL SHOPPING MALL. THE SITE IS FLAT AND BORDERED BY RT. 22 AND A TREE LINE.

WEATHER CONDITIONS WERE SUNNY, WARM 60-65° F; VISIBILITY GOOD, LIGHT WIND.

NO HNU READINGS ABOVE BACKGROUND of 0 ppm DURING SITE INSPECTION

Martin James O'Neill
10/10/83

NUS CORPORATION

POTENTIAL HAZARDOUS WASTE SITE

Dover Landfill #1
Site Name

NJD980508147
EPA Site ID Number

Route 22: across from Grand Union
Address Dover, NY 12522

02-8306-07
TDD Number

Date of Site Visit: 10/5/83

SITE DESCRIPTION

The site is an inactive municipal landfill which operated from 1950 to 1960, and is located in a rural area. The former fill area encompasses 1.5 acres of a 10 acre tract of land. The site is currently planted and supporting alfalfa. No leachate, discolored soil, or exposed refuse, was observed during the site inspection.

PRIORITY FOR FURTHER ACTION: High ___ Medium ___ Low X

RECOMMENDATIONS

No further action recommended.

Prepared by: Martin J. O'Neill
of NUS Corporation

Date: 10/17/83

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

EPA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D980508147

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
Dover Landfill #1	Route 22 - Across from Grand Union				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
Dover	NY	12522	Dutchess	027	25

09 COORDINATES LATITUDE: 41° 43' 30" N | LONGITUDE: 73° 34' 50" W

10 DIRECTIONS TO SITE (Starting from nearest public road)

South on Route 55 to Route 21. Route 21 West to 22 North. Approximately 8 miles on Route 22 to the Grand Union. Site is across the street and to the South 500 feet.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)			
Richard Rennia and Robert Keller	Railroad Avenue			
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 TELEPHONE NUMBER**	
Dover	NY	12522	(914) 877-9105	
07 OPERATOR (If known and different from owner)	**08 STREET** (Business, mailing, residential)			
Town of Dover	Rural Route 2, Box 212			
09 CITY	**10 STATE**	**11 ZIP CODE**	**12 TELEPHONE NUMBER**	
Wingdale	NY	12594	(914) 877-9105	

13 TYPE OF OWNERSHIP (Check one)

☒ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL

☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)

☐ A. RCRA 3001 DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☒ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

☒ YES ☐ NO DATE 10 / 5 / 83 (MONTH DAY YEAR)

BY (Check all that apply)

☐ A. EPA ☒ B. EPA CONTRACTOR ☐ C. STATE ☐ D. OTHER CONTRACTOR

☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)

CONTRACTOR NAME(S): NUS Corporation

02 SITE STATUS (Check one)

☐ A. ACTIVE ☒ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION

1950 (BEGINNING YEAR) | 1960 (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Site was utilized to dispose of municipal refuse. Open burning was conducted at the site. At the time of operation, the town of Dover supported two rubber plants and a furniture manufacturer. Wastes from these industrial operations may have been deposited on-site.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

Site is currently supporting alfalfa. No exposed refuse was observed during the site inspection. Hazard to environment or population is low.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)

☐ A. HIGH (Inspection required promptly) ☐ B. MEDIUM (Inspection required) ☐ C. LOW (Inspect on time available basis) ☒ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)		03 TELEPHONE NUMBER	
Mark Haulenbeek	US EPA, Environmental Services Division		(201) 321-6685	
04 PERSON RESPONSIBLE FOR ASSESSMENT	**05 AGENCY**	**06 ORGANIZATION**	**07 TELEPHONE NUMBER**	**08 DATE**
Martin J. O'Neill	FIT II	NUS Corporation	(201) 225-6160	10 / 10 / 83 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

EPA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NY	D980508147

II. SITE NAME AND LOCATION

01 SITE NAME	02 STREET, ROUTE NO. OR SPECIFIC LOCATION IDENTIFIER
Dover Landfill #1	Route 22 - Across from Grand Union

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Dover	NY	12522	Dutchess	027	25

09 COORDINATES	10 TYPE OF OWNERSHIP (Check one)
LATITUDE 41° 43' 30" N / LONGITUDE 73° 34' 50" W	X A. PRIVATE ☐ B. FEDERAL _____ ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL ☐ F. OTHER _____ ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
10 · 5 · 83 (MONTH DAY YEAR)	☐ ACTIVE X INACTIVE	± 1950 (BEGINNING YEAR) / 1960 (ENDING YEAR) ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)

☐ A. EPA ☒ B. EPA CONTRACTOR NUS Corp. (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR _____ (Name of firm)
☐ E. STATE ☐ F. STATE CONTRACTOR _____ (Name of firm) ☐ G. OTHER _____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Martin J. O'Neill	Environmental Scientist	NUS Corp.	(201) 225-6160
09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
Arthur J. Clarke	Chemist	NUS Corp.	(201) 225-6160
Edward F. McTiernan	Environmental Scientist	NUS Corp.	(201) 225-6160
			( )
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
Otto Sprossel	Supervisor	Town of Dover	914) 832-6234
George Morse	Councilman	Rural Route 2 Box 212	914) 877-9105
Richard Rennia	Councilman	Wingdale, NY 12594	914) 877-9105
			( )
			( )
			( )

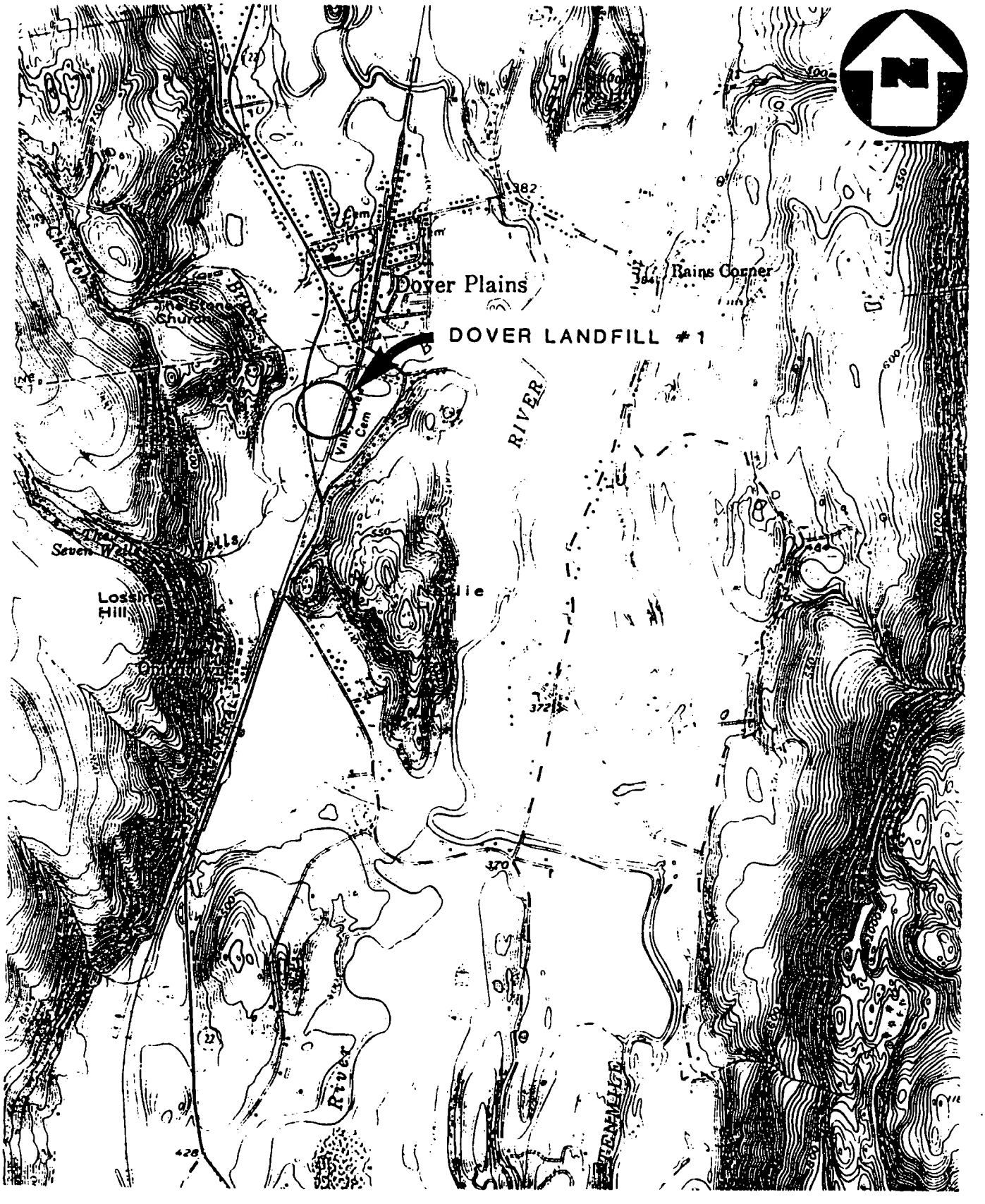
17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
X PERMISSION ☐ WARRANT	935 hr.	Sunny, warm 60-65°F, light wind, visibility good.

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO
Mark Haulenbeek	US EPA, Environmental Services Division	(201) 321-6685

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Martin J. O'Neill	FIT II	NUS Corp.	201-225-6160	10 , 10 , 83 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)



SITE LOCATION MAP

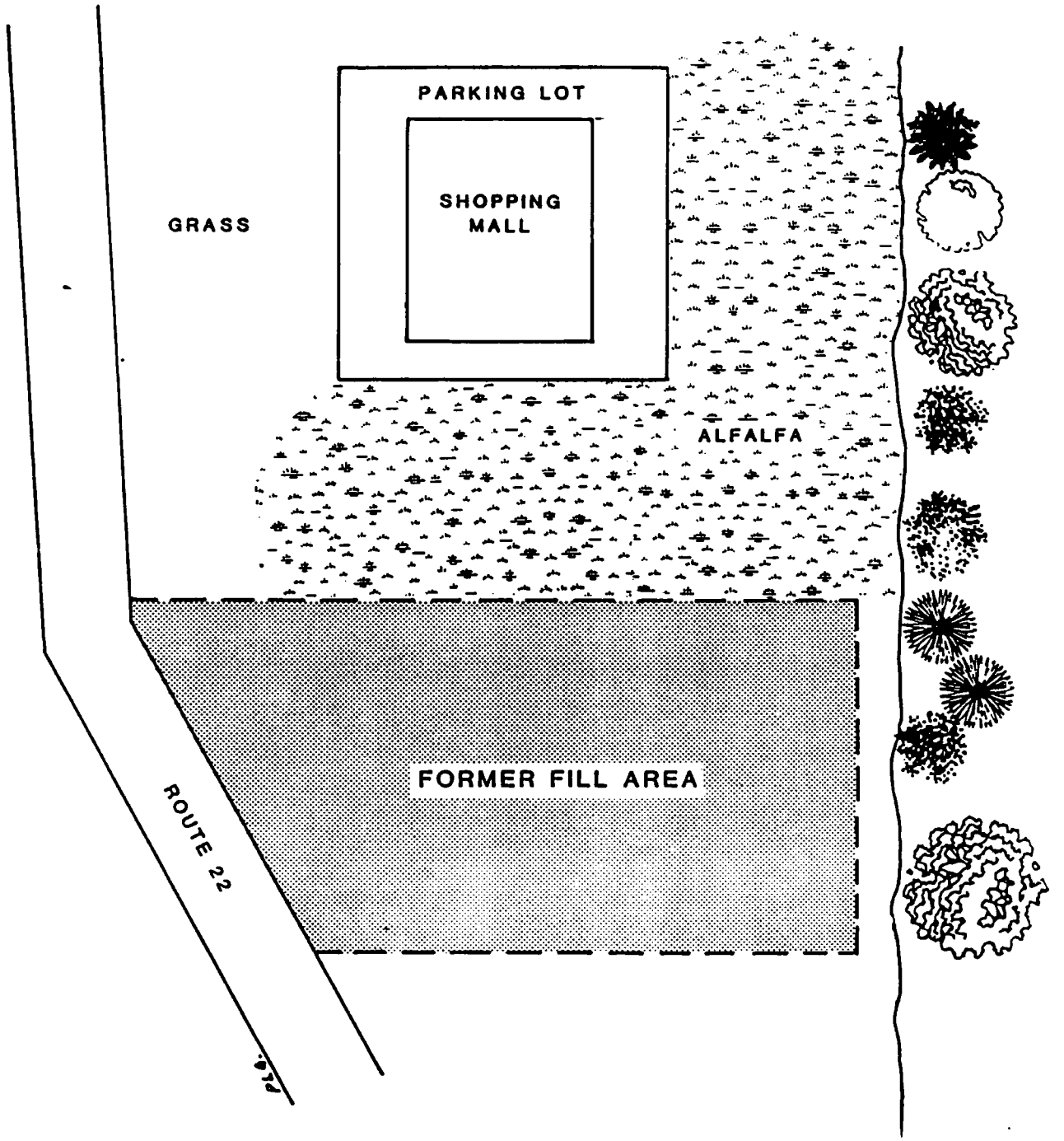
DOVER LANDFILL #1 DOVER PLAINS, N.Y.

SCALE: 1"=2000'

FIGURE A-1

NUS CORPORATION

A Halliburton Company



SITE MAP

DOVER LANDFILL #1 DOVER PLAINS, N.Y.

(NOT TO SCALE)

FIGURE A-2

NUS CORPORATION

A Halliburton Company

REFERENCE 3

POTENTIAL HAZARDOUS WASTE SITE
IDENTIFICATION AND PRELIMINARY ASSESSMENT

EPA

REGION	SITE NUMBER (to be assigned by Hq)
2	NY0000102704

NOTE: This form is completed for each potential hazardous waste site to help set priorities for site inspection. The information submitted on this form is based on available records and may be updated on subsequent forms as a result of additional inquiries and on-site inspections.

GENERAL INSTRUCTIONS: Complete Sections I and III through X as completely as possible before Section II *(Preliminary Assessment)*. File this form in the Regional Hazardous Waste Log File and submit a copy to: U.S. Environmental Protection Agency; Site Tracking System; Hazardous Waste Enforcement Task Force *(EN-335)*; 401 M St., SW; Washington, DC 20460.

I. SITE IDENTIFICATION

A. SITE NAME: Dover LF

B. STREET *(or other identifier)*: Rt 22 across from Grand Union

C. CITY: Dover

D. STATE: NY

E. ZIP CODE: 12522

F. COUNTY NAME: Dutchess

G. OWNER/OPERATOR *(If known)*

1. NAME: Town of Dover
2. TELEPHONE NUMBER:

H. TYPE OF OWNERSHIP

☐ 1. FEDERAL ☐ 2. STATE ☐ 3. COUNTY ☑ 4. MUNICIPAL ☐ 5. PRIVATE ☐ 6. UNKNOWN

I. SITE DESCRIPTION: Flat & wet with small stream through center. No leachate visible. Six construction contractors on property

J. HOW IDENTIFIED *(i.e., citizen's complaints, OSHA citations, etc.)*:

K. DATE IDENTIFIED *(mo., day, & yr.)*:

L. PRINCIPAL STATE CONTACT

1. NAME: Jack Doty NYSDEC
2. TELEPHONE NUMBER: 212-488-5980

II. PRELIMINARY ASSESSMENT *(complete this section last)*

A. APPARENT SERIOUSNESS OF PROBLEM

☐ 1. HIGH ☐ 2. MEDIUM ☑ 3. LOW ☐ 4. NONE ☐ 5. UNKNOWN

B. RECOMMENDATION

☐ 1. NO ACTION NEEDED *(no hazard)*

☐ 2. IMMEDIATE SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR:
b. WILL BE PERFORMED BY:

☐ 3. SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR:
b. WILL BE PERFORMED BY:

☑ 4. SITE INSPECTION NEEDED *(low priority)*

C. PREPARER INFORMATION

1. NAME: Karl Mangels EPA
2. TELEPHONE NUMBER: 212-264-1573
3. DATE *(mo., day, & yr.)*: 9/3/81

III. SITE INFORMATION

A. SITE STATUS

☐ 1. ACTIVE *(Those industrial or municipal sites which are being used for waste treatment, storage, or disposal on a continuing basis, even if infrequently.)*

☑ 2. INACTIVE *(Those sites which no longer receive wastes.)*

☐ 3. OTHER *(specify)*: *(Those sites that include such incidents like "midnight dumping" where no regular or continuing use of the site for waste disposal has occurred.)*

B. IS GENERATOR ON SITE?

☑ 1. NO ☐ 2. YES *(specify generator's four-digit SIC Code)*:

C. AREA OF SITE *(in acres)*: 3-4

D. IF APPARENT SERIOUSNESS OF SITE IS HIGH, SPECIFY COORDINATES

1. LATITUDE *(deg.-min.-sec.)*:
2. LONGITUDE *(deg.-min.-sec.)*:

E. ARE THERE BUILDINGS ON THE SITE?

☐ 1. NO ☐ 2. YES *(specify)*:

Continue On Reverse

REFERENCE 4

A Statistical Abstract Supplement

County and City Data Book

1983

CAT. NO. 23 012

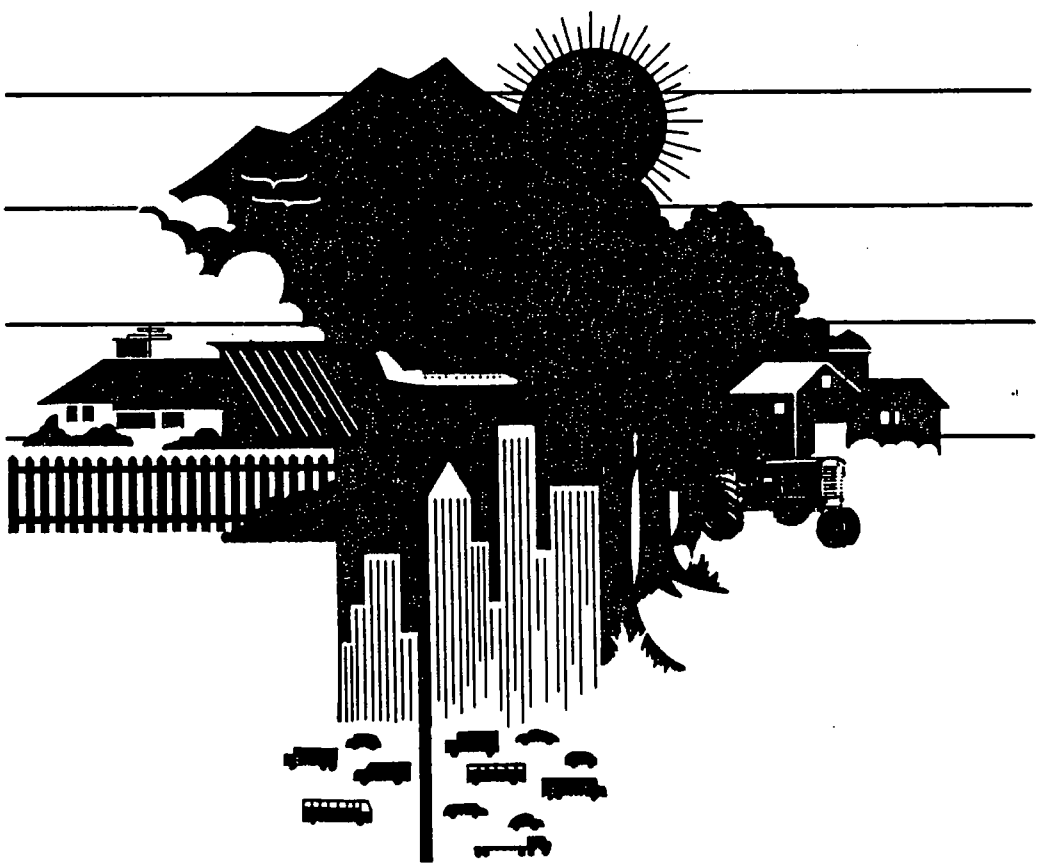
PRINTED IN U.S.A.

States

Counties

Cities of 25,000 or More

Places of 2,500 or More



U.S. Department of Commerce
Malcolm Baldrige, Secretary
Clarence J. Brown,
Deputy Secretary

BUREAU OF THE CENSUS
C.L. Kincannon,
Deputy Director

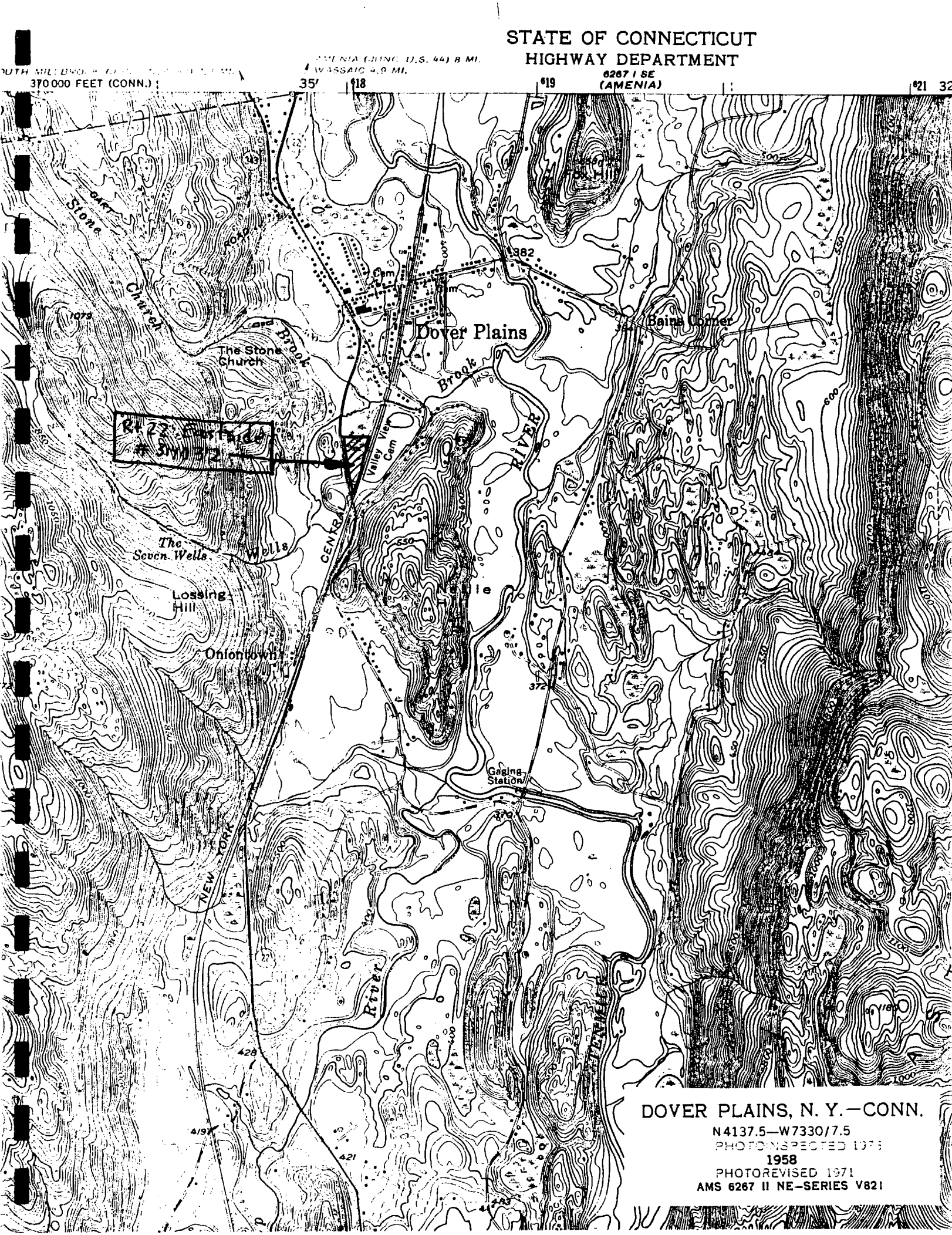
Table D. Places — Area, Population, and Housing—Con.

State and place[a] code	State and place (county name)	Land area,[1] 1980 (Sq. mi.)	Population, 1980 (Apr. 1)							Money income, 1979		Total housing units	Occupied housing units, 1980 (Apr. 1)			
				Percent										Owner-occupied		
			Total persons	Change, 1970-1980	Black	Spanish origin[2]	65 yrs. and over	High school graduates[3]	Below poverty level[4]	Per capita	Median household		Total[5]	Percent	Median value[6]	Median gross rent[7]
		(Sq. mi.)								(Dol.)	(Dol.)				(Dol.)	(Dol.)
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1485	Chili town (Monroe)	39.7	23 676	20.7	2.7	1.2	6.1	79.1	3.0	8 152	24 648	7 544	7 401	77.4	48 900	283
1494	Cicero town (Onondaga)	47.6	23 689	5.1	1.3	.7	6.1	74.3	4.3	6 975	20 863	7 875	7 401	78.0	37 300	253
1521	Clarence town (Erie)	54.6	18 146	-.1	.3	.5	12.1	80.4	3.8	8 632	24 340	6 011	5 860	84.5	60 300	226
1539	Clarkson town (Monroe)	33.2	4 016	10.3	1.3	1.0	11.6	70.9	4.3	8 108	23 171	1 392	1 330	74.7	47 300	235
1548	Clarkstown town (Rockland)	39.3	77 091	25.0	5.8	2.8	7.4	82.1	3.6	9 407	28 574	23 297	22 720	81.8	73 700	339
1566	Claverack town (Columbia)	49.5	6 061	6.1	1.2	.3	16.2	63.9	10.1	6 125	15 093	2 407	2 133	75.9	37 000	221
1575	Clay town (Onondaga)	49.3	52 836	45.7	2.7	.7	4.5	82.7	4.3	7 576	21 801	18 222	17 299	68.5	43 000	289
1584	Clayton town (Jefferson)	106.7	4 028	.2	-	1.0	13.6	62.4	12.1	5 324	13 269	2 643	1 451	76.3	28 400	212
1611	Clifton Park town (Saratoga)	48.9	23 989	61.4	.6	.2	4.4	91.1	3.3	9 123	27 242	7 821	7 464	78.5	65 500	324
1629	Clinton town (Dutchess)	38.4	3 394	30.3	.2	1.1	9.6	78.9	6.3	8 118	23 099	1 255	1 114	82.3	51 000	281
1647	Cobleskill town (Schoharie)	31.5	7 048	17.1	.9	1.4	12.8	65.2	12.9	5 063	14 706	2 079	1 937	58.5	38 300	218
1665	Coeymans town (Albany)	41.5	7 896	17.6	2.2	3.1	9.9	68.1	7.4	6 745	17 797	3 021	2 768	65.5	38 900	253
1692	Colden town (Erie)	36.2	3 128	3.6	-	.4	8.6	70.6	4.8	6 902	20 636	1 106	1 014	82.1	47 800	193
1710	Colesville town (Broome)	81.3	4 965	12.3	-	.8	9.5	57.1	8.7	5 702	16 555	1 803	1 557	83.4	31 900	230
1719	Collins town (Erie)	48.2	5 037	-21.3	1.3	.4	20.3	61.2	10.0	5 857	15 226	1 654	1 519	74.9	32 400	203
1728	Colonie town (Albany)	57.5	74 593	7.9	2.0	.9	11.4	76.1	5.2	8 324	21 191	26 707	25 852	71.8	42 700	281
1764	Concord town (Erie)	71.5	8 171	7.9	.2	.1	12.2	65.9	7.1	6 487	17 925	2 929	2 735	72.2	38 500	206
1800	Conklin town (Broome)	24.7	6 204	14.9	1.9	.2	8.6	72.8	6.2	6 259	17 930	2 105	2 043	83.9	40 200	248
1827	Constantia town (Oswego)	56.9	4 312	21.6	-	.2	8.5	64.5	9.8	5 700	17 083	1 836	1 376	83.2	32 300	242
1836	Copake town (Columbia)	38.3	2 854	29.2	.4	.5	17.6	60.9	14.6	5 648	12 575	1 699	970	73.6	43 500	249
1845	Corinth town (Saratoga)	58.1	5 216	-4.2	.2	.4	13.4	59.6	10.0	5 891	15 494	2 226	1 812	77.0	29 000	191
1854	Corning town (Steuben)	38.9	6 848	-9.0	2.1	.1	9.6	70.0	6.7	6 130	19 991	2 470	2 390	85.0	32 600	224
1863	Cornwall town (Orange)	27.9	10 774	11.4	.8	1.8	12.4	73.2	6.2	7 743	19 317	4 060	3 844	67.4	48 500	270
1872	Cortlandt town (Westchester)	39.8	35 705	3.8	2.9	2.4	11.5	76.4	4.0	9 536	25 180	12 247	11 576	73.8	65 400	320
1881	Cortlandville town (Cortland)	50.1	8 299	11.1	.1	.8	9.4	70.6	8.5	6 909	17 945	3 003	2 866	72.1	40 900	229
1917	Coxsackie town (Greene)	38.1	6 018	42.1	8.8	3.5	13.7	67.2	13.6	5 676	15 503	2 225	1 970	68.0	31 800	211
1926	Crawford town (Orange)	40.3	4 910	26.0	1.2	1.8	11.3	69.2	7.9	6 492	17 306	1 731	1 578	78.7	40 700	247
1935	Croghan town (Lewis)	187.3	2 824	10.4	-	-	10.9	60.8	13.7	4 835	13 552	1 115	873	82.1	27 700	171
1953	Cuba town (Allegany)	36.6	3 428	8.3	-	.2	14.0	69.0	9.5	6 596	14 178	1 572	1 239	73.3	29 000	196
1980	Dannemora town (Clinton)	65.4	4 717	Z	23.3	12.9	6.1	51.4	9.0	3 465	15 290	1 130	791	78.8	20 700	250
2007	Darien town (Genesee)	46.8	2 950	7.5	-	1.1	7.5	71.4	9.5	6 533	20 952	947	871	83.7	37 800	257
2052	De Witt town (Onondaga)	34.4	3 934	-4.1	.2	.3	12.2	69.7	3.4	6 581	20 769	1 215	1 189	83.9	36 700	231
2061	Deerfield town (Oneida)	71.8	5 633	28.9	1.2	1.3	12.4	60.7	14.7	5 988	14 552	2 445	2 048	82.5	34 300	254
2079	Deerpark town (Orange)	35.5	2 783	23.1	10.8	3.7	16.0	64.8	14.3	5 412	13 243	1 171	879	76.2	35 400	215
2088	Delaware town (Sullivan)	65.4	5 295	14.7	1.4	1.1	13.7	68.6	12.7	4 802	15 099	1 596	1 382	68.1	38 600	218
2142	Delhi town (Delaware)	34.7	26 868	-8.0	2.2	.6	10.8	80.0	5.8	9 414	21 975	9 573	9 211	73.9	47 600	250
2160	Dickinson town (Broome)	4.9	5 594	-1.6	.1	.4	18.8	68.0	5.7	6 797	16 604	2 048	1 987	74.0	40 400	220
2178	Dix town (Schuyler)	37.2	4 138	-1.5	.4	.2	15.4	66.0	9.6	6 083	14 074	1 641	1 475	72.4	30 600	191
2187	Dover town (Dutchess)	56.0	7 281	-14.3	7.2	2.9	12.3	49.6	10.3	6 106	18 451	2 540	2 254	70.6	45 200	242
2205	Dryden town (Tompkins)	85.2	12 158	24.4	.8	.7	7.2	81.8	12.2	6 778	15 795	4 705	4 467	68.3	44 100	234
2223	Duanesburg town (Schenectady)	72.0	4 729	24.4	-	.4	10.3	71.1	7.7	8 681	18 474	1 768	1 554	85.5	37 200	213
2259	East Bloomfield town (Ontario)	33.3	3 327	5.6	.3	1.9	8.0	76.9	7.3	7 041	20 703	1 144	1 077	73.3	46 200	259
2268	East Fishkill town (Dutchess)	7.1	32 648	-10.9	2.6	1.4	16.2	82.0	3.5	13 114	26 794	12 559	12 333	59.4	95 200	358
2277	East Greenbush town (Rensselaer)	56.6	18 091	63.1	1.0	2.0	6.6	82.3	4.1	7 643	24 853	5 700	5 383	87.9	60 800	339
2286	East Hampton town (Suffolk)	25.5	12 913	20.9	1.4	.7	10.5	74.5	4.1	7 547	19 977	4 600	4 462	75.3	38 200	278
2295	Eastchester town (Westchester)	69.7	14 029	27.8	5.1	2.0	19.0	71.2	10.0	9 453	16 668	12 971	5 760	78.7	70 000	331
2322	Eaton town (Madison)	48.3	5 182	16.2	2.3	1.1	8.0	67.2	15.5	4 187	15 359	1 562	1 131	74.8	28 400	210
2331	Eden town (Erie)	40.6	7 327	-4.1	.4	.6	9.4	68.9	3.1	7 138	20 858	2 407	2 284	84.9	43 500	227
2376	Elbridge town (Onondaga)	40.2	5 885	6.9	.1	.7	10.0	66.3	9.0	6 682	18 253	2 212	2 011	81.2	37 400	246
2403	Ellery town (Chautauqua)	48.8	4 617	.5	-	-	13.0	74.3	5.8	6 873	16 872	2 256	1 706	83.6	38 100	221
2412	Ellicott town (Chautauqua)	30.6	9 979	-2.5	.3	.4	15.9	68.1	5.5	7 288	16 447	4 050	3 790	75.5	31 600	187
2439	Ellisburg town (Jefferson)	86.9	3 312	-2.2	-	-	12.1	59.1	19.0	4 699	11 619	1 580	1 048	80.4	22 600	180
2448	Elma town (Erie)	35.1	10 574	5.6	-	.1	8.9	74.0	3.1	8 488	23 982	3 450	3 368	87.2	56 800	235
2457	Elmira town (Chemung)	23.4	7 635	-9.2	.8	.5	17.4	83.7	3.9	9 324	19 612	3 034	2 913	83.6	43 600	282
2493	Erwin town (Steuben)	41.5	6 445	2.7	1.9	.5	11.3	77.3	4.9	8 964	19 938	2 571	2 459	73.8	40 400	246
2502	Esopus town (Ulster)	41.2	7 605	9.0	2.7	.9	11.5	68.5	12.9	6 514	17 697	2 864	2 479	78.4	33 700	268
2529	Evans town (Erie)	41.4	17 961	23.3	.1	1.4	9.2	68.9	7.5	6 444	18 697	6 771	5 828	81.7	33 800	242
2565	Fallsburg town (Sullivan)	79.4	9 882	23.9	13.1	6.7	10.8	62.9	19.3	5 507	13 481	7 420	3 012	62.5	37 200	223
2583	Farmington town (Ontario)	39.5	8 933	150.6	1.0	1.1	4.3	77.9	5.8	6 872	20 754	2 953	2 851	79.0	46 500	287
2592	Fayette town (Seneca)	65.5	3 561	18.8	-	-	9.2	69.8	5.3	6 938	17 316	1 513	1 179	83.8	36 300	244
2610	Fenton town (Broome)	33.4	7 400	10.1	.6	.2	10.6	68.1	5.4	6 232	16 096	2 673	2 542	87.0	40 800	221
2628	Fishkill town (Dutchess)	27.4	15 506	29.9	7.3	3.9	11.7	72.4	4.1	7 915	21 374	5 581	5 207	82.3	50 700	313
2655	Florida town (Montgomery)	52.2	2 578	12.9	.6	.7	10.0	67.7	5.5	6 495	17 808	919	887	87.5	32 000	235
2664	Floyd town (Oneida)	35.1	3 883	6.7	.9	.8	5.7	68.4	7.5	6 050	18 039	1 231	1 198	87.3	34 900	252
2691	Fort Ann town (Washington)	107.9	4 425	18.0	19.2	8.6	6.6	50.4	12.0	4 108	16 261	1 629	949	80.3	33 000	218
2709	Fort Edward town (Washington)	27.3	6 479	-9.6	.4	.4	12.9	61.6	12.0	5 351	15 015	2 254	2 080	74.0	27 600	212
2727	Frankfort town (Herkimer)	37.4	7 666	-1.5	.5	Z	12.0	61.8	7.9	5 887	15 131	2 816	2 682	76.3	31 300	170
2754	Franklinville town (Cattaraugus)	50.5	3 102	9.0	-	.2	16.0	57.8	18.0	5 161	11 405	1 418	1 127	76.0	25 500	197
2826	Gaines town (Orleans)	38.1	2 692	12.9	3.7	.1	14.2	63.4	7.8	6 824	18 138	1 009	924	83.0	31 900	289
2844	Galen town (Wayne)	58.2	4 480	-3.0	3.8	2.2	12.9	54.0	12.1	5 856	15 333	1 675	1 509	76.9	24 600	229
2862	Galway town (Saratoga)	44.4	3 018	20.4	-	-	8.5	76.3	10.4	6 353	18 525	1 442	986	86.0	37 200	260
2871	Gardiner town (Ulster)	43.9	3 552	36.7	2.8	3.2	11.7	74.2	7.0	7 044	17 848	1 573	1 278	71.7	43 500	267
2880	Gates town (Monroe)	15.1	29 756	12.5	2.0	1.3	10.3	65.8	3.6	8 160	22 871	10 320	10 082	78.6	44 800	272
2889	Geddes town (Onondaga)	12.7	18 528	-11.9	.2	.9	15.1	71.2	4.9	6 078	19 630	6 849	6 669	78.8	41 900	208
2916	Genesee town (Livingston)	46.3	8 673	19.2	.9	.5	6.9	77.8	17.8	5 114	16 049	2 200	1 946	56.1	47 200	268
2925	Geneva town (Ontario)	19.8	3 077	10.6	-	.5	13.3	76.7	5.9	8 155	19 279	1 294	1 159	73.2	46 400	288
2961	German Flatts town (Herkimer)	34.4	14 981	-2.9	.5	.6	14.6	67.3	13.9	5 767	15 136	5 646	5 378	68.2	25 700	160
2988	Ghent town (Columbia)	46.9	4 636	24.3	.9	.8	14.3	65.8	9.1	6 622	15 788	1 825	1 656	74.9	39 500	223
3015	Glenville town (Schenectady)	50.1	28 519	-1.6	.8	1.0	13.3	81.1	4.0	8 247	21 663	10 057	9 840	84.8	40 100	248
3024	Gorham town (Ontario)	53.1	3 598	18.6	.1	.4	12.1	68.8	7.9	6 532	17 227	1 710	1 245	81.2	34 000	267
3033	Goshen town (Orange)	43.9	10 463	24.7	6.2	2.5	12.1	70.5	7.3	7 233	21 760	3 247	3 069	68.4	49 300	268
3042	Gouverneur town (St. Lawrence)	72.0	6 629	-1.2	-	.3	12.3	64.5	21.1	5 192	10 887	2 565	2 394	65.1	24 000	192
3060	Granby town (Oswego)	46.9	6 341	34.4	.2	1.6	7.6	62.8	11.1	5 909	16 685	2 257	2 101	83.9	36 500	246
3069	Grand Island town (Erie)	29.4	18 770	20.0	1.3	1.0	6.4	83.8	2.5	8 361	24 245	6 629	6 416	78.6	52 500	288
3087	Granville town (Washington)	54.4	5 566	2.8	.3	.2	14.2	61.1	13.3	5 498	15 734	2 008	1 795	73.6	29 700	224
3105	Greece town (Monroe)	47.7	81 367	8.3	1.6	.5	9.1	76.6	3.6	9 069	23 966	29 531	28 950	72.5	48 600	269
3114	Green Island town (Albany)	26.3	82 881	-3.4	11.5	3.6	11.5	82.8	4.2	12 307	27 648	30 154	29 682	61.5	85 700	345
3123	Greenburgh town (Westchester)	78.6	5 729	7.1	.1	.2	10.1	70.3	10.9	5 960	16 198	2 086	1 944	76.4	35 800	217
3132	Greene town (Chenango)	66.5	6 104	16.6	1.5	1.8	7.8	63.7	14.9	5 271	14 870	1 973	1 650	81.2	39 100	265
3141	Greenfield town (Saratoga)	.9	2 696	-18.2	-	.4	16.0	58.5	7.1	6 452	14 745	1 132	1 042	46.8	28 100	191

See footnotes at end of table D.

REFERENCE 5

STATE OF CONNECTICUT
HIGHWAY DEPARTMENT



DOVER PLAINS, N. Y.—CONN.

N4137.5—W7330/7.5

PHOTOINSPECTED 1971

1958

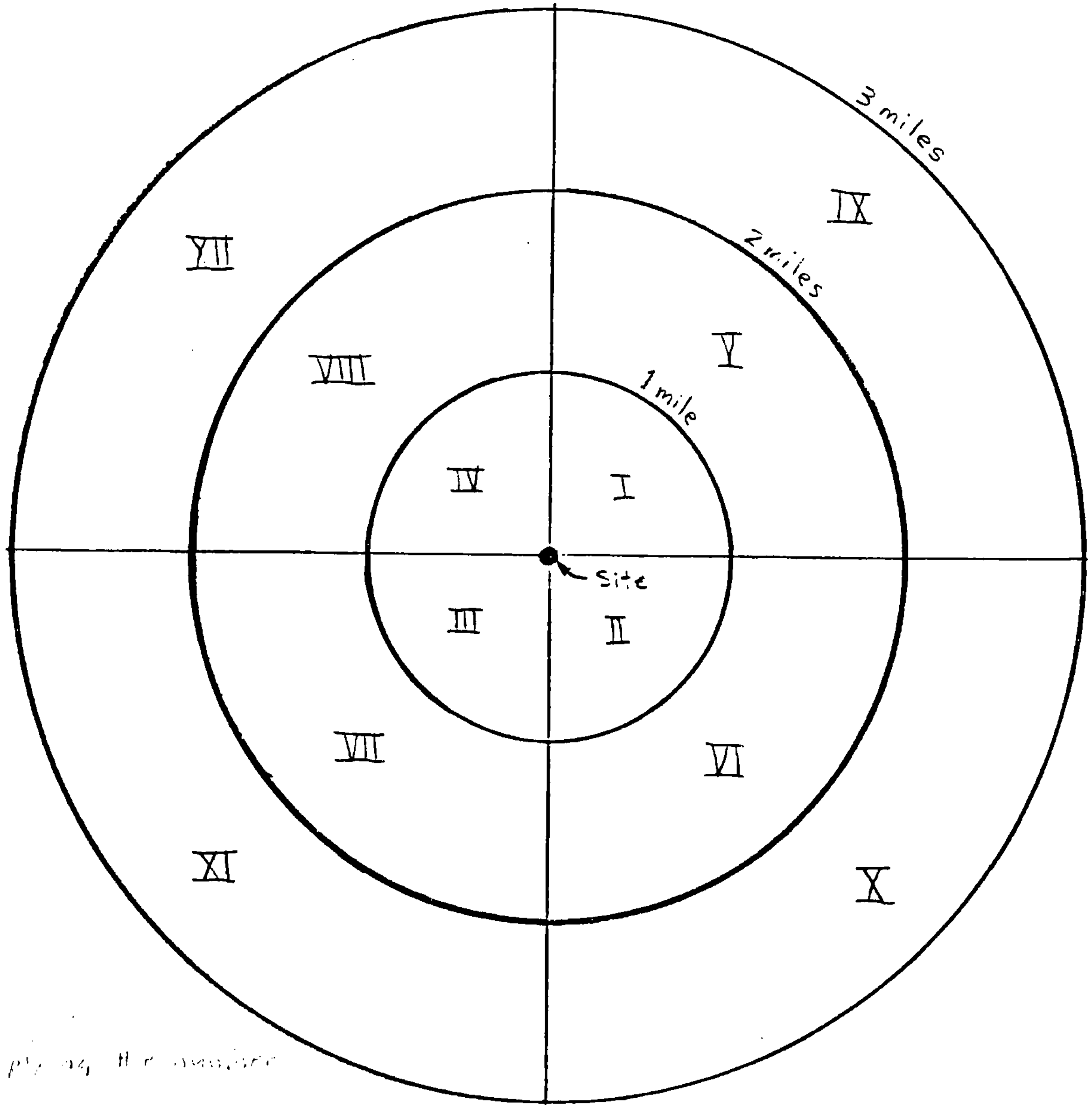
PHOTOREVISED 1971

AMS 6267 II NE—SERIES V821

ZONE METHOD OF DETERMINING POPULATION

Rt. 22 Eastside

ZONE	Number of Homes	Population
I	189	718
II	58	220
III	19	72
IV	81	308
Subtotal	347	1319
0-1 mile	347	1319
V	56	213
VI	37	141
VII	16	61
VIII	136	517
Subtotal	245	931
0-2 miles	592	2250
IX	48 + 40**	2022
X	79	300
XI	56*	213
XII	73	277
Subtotal	296	2812
0-3 miles	888	5062



Note: Population obtained by multiplying the number of homes by 3.8

** About 32% of the [illegible] Development is within 3 miles; approximately [illegible] with a population of 1574 [illegible] 1988)

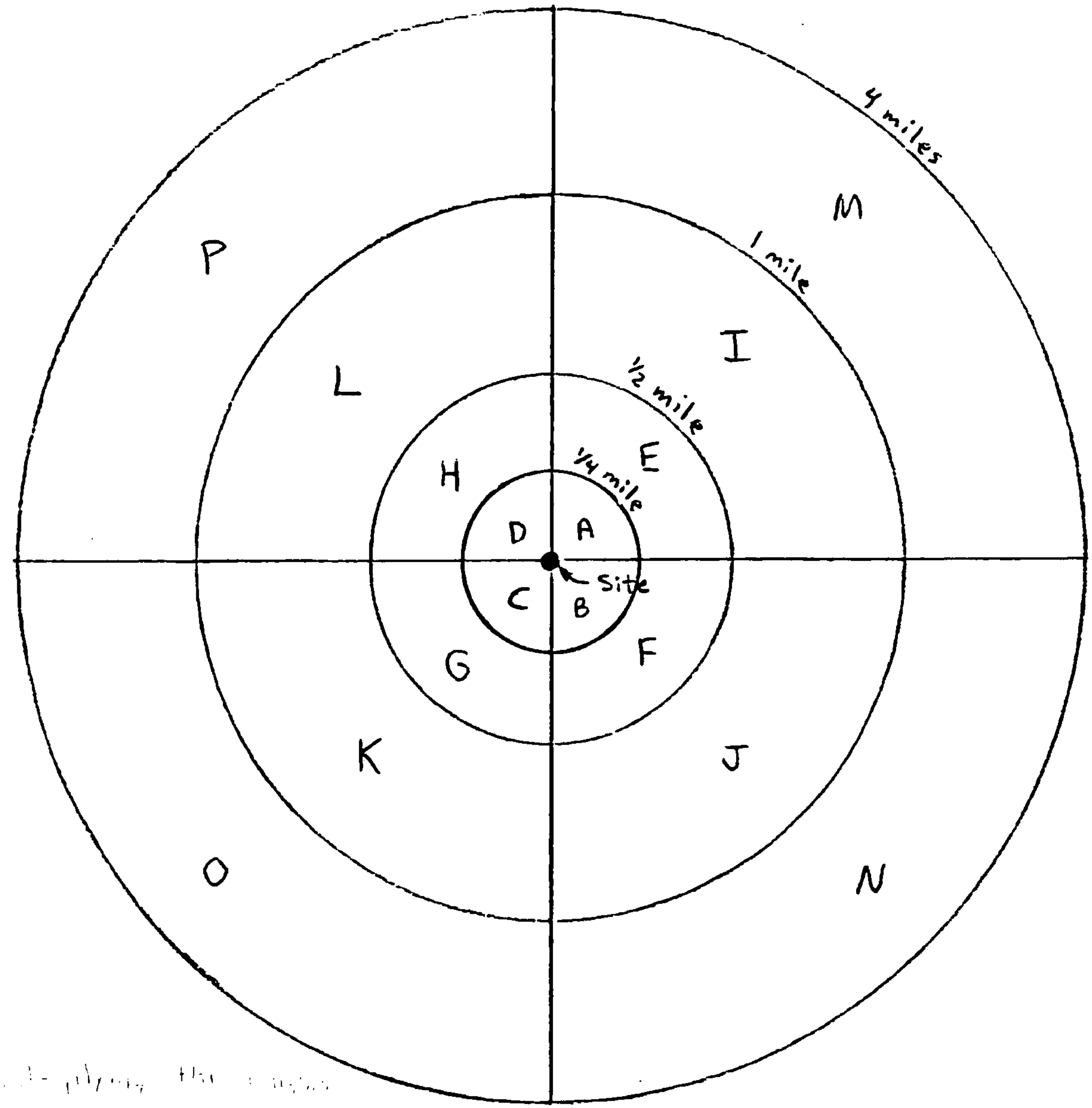
* Estimated

Lawler, Matusky & Skelly Engineers

ZONE METHOD OF DETERMINING POPULATION (continued)

Rt. 22 Eastside

ZONE	Number of Homes	Population
A	13	49
B	6	23
C	2	8
D	2	8
0-¼ mile	23	87
E	55	209
F	0	0
G	0	0
H	16	61
Subtotal	71	270
0-½ mile	94	357
I	121	460
J	52	198
K	17	65
L	63	239
Subtotal	253	961
0-1 mile	347	1319
M	203 + 98**	3071
N	245	931
O	117*	445
P	244*	927
Subtotal	857	5314
0-4 miles	1204	6697



Note: * Population obtained by multiplying the [illegible] of buildings by 3.8

** [illegible] 19[illegible])

REFERENCE 6

NEW YORK NATURAL HERITAGE PROGRAM

NEW YORK RARE PLANT STATUS LIST

February 1989

Edited by:

Steven E. Clemants

Botanist

New York Natural Heritage Program*

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New York State Department of Environmental Conservation and
The Nature Conservancy, with support from Return a Gift to
Wildlife contributions

EXPLANATION OF RANKS AND CODES

New York Natural Heritage Program (NYNHP) Ranks

Each element has a global and state rank. The global rank reflects the rarity of the element throughout the world and the state rank reflects the rarity within New York State. Infraspecific taxa are also assigned a taxon rank to reflect the infraspecific taxon's rank throughout the world.

GLOBAL RANK

G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences, or very few remaining acres, or miles of stream) or especially vulnerable to extinction because of some factor of its biology.
G2 = Imperiled globally because of rarity (6 - 20 occurrences, or few remaining acres, or miles of stream) or very vulnerable to extinction throughout its range because of other factors.
G3 = Either very rare and local throughout its range (21 to 100 occurrences), or found locally (even abundantly at some of its locations) in a restricted range (e.g. a physiographic region), or vulnerable to extinction throughout its range because of other factors.
G4 = Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.
→ G5 = Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.
GH = Historically known, with the expectation that it might be rediscovered.
GX = Species believed extinct.
GU = Status unknown.

STATE RANK

→ S1 = Typically 5 or fewer occurrences, very few remaining individuals, acres, or miles of stream, or some factor of its biology making it especially vulnerable in New York State.
→ S2 = Typically 6 to 20 occurrences, few remaining individuals, acres, or miles of stream, or factors demonstrably making it very vulnerable in New York State.
S3 = Typically 21 to 100 occurrences, limited acreage, or miles of stream in New York State.
S4 = Apparently secure in New York State.
S5 = Demonstrably secure in New York State.
SH = Historically known from New York State, but not seen in the past 15 years.
SX = Apparently extirpated from New York State.
SE = Exotic, not native to New York State.
SR = State Report only, no verified specimens known from New York State.
SU = Status in New York State is unknown.

TAXON RANK

The T-ranks are defined the same way the Global ranks are but the T-rank only refers to the rarity of the subspecific taxon not the rarity of the species as a whole.

A "Q" indicates a question exists whether or not the taxon is a good taxonomic entity.
A "?" indicates a question exists about the rank.

New York State Plant Legal Status

The following catagories are defined in regulation 6NYCRR part 193.3 (amendment pending) and apply to New York State Environmental Conservation Law section 9-1503. - effective 6/2/89

E = Endangered Species: listed species are those with
1) 5 or fewer extant sites, or
2) fewer than 1,000 individuals, or
3) restricted to fewer than 4 U.S.G.S. 7 1/2 minute topographical maps, or
4) species listed as endangered by the U. S. Department of Interior, as enumerated in the Code of Federal Regulations 50 CFR 17.11.

T = Threatened: listed species are those with
1) 6 to fewer than 20 extant sites, or
2) 1,000 to fewer than 3,000 individuals, or
3) restricted to not less than 4 or more than 7 U.S.G.S. 7 1/2 minute topographical maps, or
4) listed as threatened by the U. S. Department of the Interior, as enumerated in the Code of Federal Regulations 50 CFR 17.11.

R = Rare: listed species have
1) 20 to 35 extant sites, or
2) 3,000 to 5,000 individuals statewide.

V = Exploitably vulnerable: listed species are likely to become threatened in the near future throughout all or a significant portion of their range within the state if causal factors continue unchecked. (The attached list does not contain a complete listed of the species in this category.

3/89

RARE PLANT STATUS LIST
NY Natural Heritage Program

NHP GLOBAL RANK	NHP STATE RANK	SCIENTIFIC NAME	COMMON NAME	STATE LEGAL STATUS	FEDERAL STATUS	NHP LIST?
G4G5	S2	ASCLEPIAS PURPURASCENS	PURPLE MILKWEED	T		Y
G4G5	SH	ASCLEPIAS RUBRA	RED MILKWEED			Y
G5	S1	ASCLEPIAS VARIEGATA	WHITE MILKWEED	T		Y
G5	S2	ASCLEPIAS VIRIDIFLORA	GREEN MILKWEED	R		Y
G5	S2	ASIMINA TRILOBA	PAWPAW	R		Y
G3	SH	ASPLENIUM BRADLEYI	BRADLEY'S SPLEENWORT	V		Y
G5	S2S3	ASPLENIUM MONTANUM	MOUNTAIN SPLEENWORT	T		Y
G5	S1	ASPLENIUM VIRIDE	GREEN SPLEENWORT	E		Y
G5	S1	ASTER BOREALIS	RUSH ASTER			Y
G5	S1	ASTER CILIOLATUS	ASTER			Y
G4?	S1	ASTER CONCOLOR	SILVERY ASTER	E		Y
G5	SH	ASTER CRENIFOLIUS	LATE BLUE ASTER			Y
G5Q	S1	ASTER FIRMUS	CORNEL-LEAVED ASTER			Y
G5	S2	ASTER NEMORALIS	BOG ASTER	R		Y
G5	SH	ASTER ONTARIONIS	ONTARIO ASTER			Y
G4G5	S1	ASTER OOLENTANGIENSIS	SKY-BLUE ASTER			Y
G3G5	SH	ASTER PILOSUS VAR PRINGLEI	HEATH ASTER			Y
G5	SH	ASTER RADULA	SWAMP ASTER			Y
G5	S2	ASTER SCHREBERI	LARGE-LEAF ASTER			Y
G5	S2	ASTER SOLIDAGINEUS	FLAX-LEAF WHITETOP			Y
G5	SH	ASTER VIMINEUS	SMALL WHITE ASTER			Y
G3G4	S1S2	ASTRAGALUS NEGLECTUS	COOPER MILKVETCH			Y
G5	S1	BAPTISIA LACTEA	PRAIRIE FALSE-INDIGO			Y
G5T3Q	SH	BAPTISIA TINCTORIA VAR PROJECTA	YELLOW WILD INDIGO			Y

RARE PLANT STATUS LIST
NY Natural Heritage Program

NHP GLOBAL RANK	NHP STATE RANK	SCIENTIFIC NAME	COMMON NAME	STATE LEGAL STATUS	FEDERAL STATUS	NHP LIST?
G4G5	SH	BERULA ERECTA	WILD PARSNIP			Y
G4G5	S1	BETULA GLANDULOSA	TUNDRA DWARF BIRCH	E		Y
G4G5	S1	BETULA MINOR	DWARF WHITE BIRCH	E		Y
G5	S2	BETULA PUMILA	SWAMP BIRCH	R		Y
G3	S2	BIDENS BIDENTOIDES	ESTUARY BEGGAR-TICKS	T		Y
G3G4	S1	BIDENS HYPERBOREA	ESTUARY BEGGAR-TICKS	T		Y
G5	S2	BIDENS LAEVIS	SMOOTH BUR-MARIGOLD	R		Y
G5	S1	BLEPHILIA CILIATA	DOWNY WOOD-MINT	T		Y
G5	S1	BOTRYCHIUM LUNARIA	MOONWORT	E		Y
G4	S1	BOTRYCHIUM MINGANENSE	MINGAN MOONWORT	E		Y
G3	S1	BOTRYCHIUM RUGULOSUM	RUGULOSE GRAPE FERN	E		Y
G5	S1	BOUTELOUA CURTIPENDULA	SIDE-OATS GRAMA	E		Y
G3?	SH	BUCHNERA AMERICANA	BLUE-HEARTS			Y
G4?	S1	CACALIA SUAVEOLENS	SWEET-SCENTED INDIAN-PLANTAIN	R		Y
G3G5	SH	CALAMAGROSTIS LACUSTRIS	POND REEDGRASS			Y
G3	S2S3	CALAMAGROSTIS PICKERINGII	PICKERING'S REEDGRASS	R		Y
G4T1Q	S1	CALAMAGROSTIS PORTERI SSP PERPLEXA	WOOD REEDGRASS	E		Y
G4TU	S1S2	CALAMAGROSTIS PORTERI SSP PORTERI	PORTER'S REEDGRASS	R		Y
G5T?	S1	CALAMAGROSTIS STRICTA SSP STRICTA	NORTHERN REEDGRASS	E		Y
G5	S1	CALAMAGROSTIS STRICTA VAR INEXPANSA	NORTHERN REEDGRASS	T		Y
G5	SH	CALAMINTHA ARKANSANA	CALAMINT			Y
G5	SH	CALLITRICHE ANCEPS	ARCTIC WATER-STARWORT			Y

RARE PLANT STATUS LIST
NY Natural Heritage Program

NHP GLOBAL RANK	NHP STATE RANK	SCIENTIFIC NAME	COMMON NAME	STATE LEGAL STATUS	FEDERAL STATUS	NHP LIST?
G5	SH	CALLITRICHE HERMAPHRODITICA	AUTUMNAL WATER-STARWORT			Y
G5	SH	CALLITRICHE TERRESTRIS	STARWORT			Y
G5	SH	CALYPSO BULBOSA	CALYPSO	V		Y
G3G4	S1	CARDAMINE LONGII	LONG'S BITTERCRESS		C2	Y
G4	S1	CARDAMINE ROTUNDIFOLIA	MOUNTAIN WATERCRESS	T		Y
G4G5	SH	CAREX ABSCONDITA	THICKET SEDGE			Y
G5	S1	CAREX AENEA	BRONZE SEDGE			Y
G5	SH	CAREX AGGREGATA	GLOMERATE SEDGE			Y
G5T4	SH	CAREX AMPHIBOLA VAR AMPHIBOLA	NARROW-LEAVED SEDGE			Y
G5T5	SH	CAREX AMPHIBOLA VAR RIGIDA	SEDGE			Y
G5	SH	CAREX ARCTA	NORTHERN CLUSTERED SEDGE			Y
G5	S1S2	CAREX ARGYRANTHA	HAY SEDGE			Y
G5	SH	CAREX ATHERODES	AWNED SEDGE			Y
G5	S1	CAREX ATRATIFORMIS	BLACK SEDGE	E		Y
G4	S1	CAREX BACKII	ROCKY MOUNTAIN SEDGE	T		Y
G3	S1	CAREX BARRATTII	BARRATT'S SEDGE	E	C2	Y
G5	S2	CAREX BICKNELLII	BICKNELL SEDGE	R		Y
G5	S2	CAREX BIGELOWII	BIGELOW SEDGE	R		Y
G5	S1	CAREX BULLATA	BUTTON SEDGE	T		Y
G4	S2	CAREX BUSHII	SEDGE	R		Y
G5	S2	CAREX BUXBAUMII	BROWN BOG SEDGE	R		Y
G5	SH	CAREX CAPILLARIS	HAIR-LIKE SEDGE			Y
G5	SH	CAREX CAROLINIANA	HIRSUTE SEDGE			Y
G5	S2	CAREX CHORDORRHIZA	CREEPING SEDGE	R		Y

RARE PLANT STATUS LIST
NY Natural Heritage Program

NHP GLOBAL RANK	NHP STATE RANK	SCIENTIFIC NAME	COMMON NAME	STATE LEGAL STATUS	FEDERAL STATUS	NHP LIST?
G3	S1	CAREX WIEGANDII	WIEGAND SEDGE	E		Y
G5	S1	CAREX WILLDENOWII	WILLDENOW SEDGE	R		Y
G5	S1	CARYA LACINIOSA	BIG SHELLBARK HICKORY			Y
G5	SH	CASSIOPE HYPNOIDES	MOSS-HEATHER			Y
G5	S1	CASTILLEJA COCCINEA	SCARLET INDIAN-PAINTBRUSH	T		Y
G5	S1	CEANOTHUS HERBACEUS	PRAIRIE REDROOT	T		Y
G5	SH	CHAEROPHYLLUM PROCUMBENS	SPREADING CHERVIL			Y
G4	S3	CHAMAECYPARIS THYOIDES	ATLANTIC WHITE CEDAR	R		Y
G5	S2	CHAMAELIRIUM LUTEUM	BLAZING-STAR	R		Y
G5	SH	CHASMANTHIUM LAXUM	SLENDER SPIKEGRASS			Y
G5	SH	CHEILANTHES LANOSA	WOOLY LIP-FERN	V		Y
G5T?	SH	CHELONE GLABRA VAR DILATATA	TURTLE-HEADS			Y
G5T?	SH	CHELONE GLABRA VAR ELATIOR	TURTLE-HEADS			Y
G5	SH	CHENOPODIUM RUBRUM	RED PIGWEED			Y
G5	SH	CHENOPODIUM STANDLEYANUM	GOOSEFOOT			Y
G5	SH	CIRSIUM ALTISSIMUM	TALL THISTLE			Y
G4	SX	CLEMATIS OCHROLEUCA	CURLY-HEADS			Y
G5	SX	CLITORIA MARIANA	BUTTERFLY-PEA			Y
G5	SH	COLLINSIA VERNA	BLUE-EYED-MARY			Y
G5	SX	COMMELINA ERECTA	SLENDER DAYFLOWER			Y
G5	S1	CORALLORHIZA STRIATA	STRIPED CORALROOT	E		Y
G3?	S1	COREMA CONRADII	BROOM CROWBERRY	E		Y
G3	S3	COREOPSIS ROSEA	ROSE COREOPSIS	R		Y
G5	S1	CORNUS DRUMMONDII	ROUGH-LEAF DOGWOOD	T		Y

RARE PLANT STATUS LIST
NY Natural Heritage Program

NHP GLOBAL RANK	NHP STATE RANK	SCIENTIFIC NAME	COMMON NAME	STATE LEGAL STATUS	FEDERAL STATUS	NHP LIST?
G3	S1	CYPRIPEDIUM CANDIDUM	SMALL WHITE LADYSLIPPER	E	3C	Y
G5	S1	CYSTOPTERIS PROTRUSA	LOWLAND FRAGILE FERN	E		Y
G5	SX	DESCHAMPSIA ATROPURPUREA	MOUNTAIN HAIRGRASS			Y
G5TU	S1	DESCURAINIA PINNATA SSP BRACHYCARPA	NORTHERN TANSEY-MUSTARD			Y
G5	S1S3	DESMODIUM CILIARE	TICK-TREEFOIL	T		Y
G5	S1	DESMODIUM GLABELLUM	TALL TICK-CLOVER	T		Y
G1G2	SH	DESMODIUM HUMIFUSUM	SPREADING TICK-CLOVER			Y
G5	SH	DESMODIUM LAEVIGATUM	SMOOTH TICK-CLOVER			Y
G5	SH	DESMODIUM NUTTALLII	NUTTALL'S TICK-CLOVER			Y
G4G5	SH	DESMODIUM OBTUSUM	BEGGAR-LICE			Y
G5	S1?	DESMODIUM PAUCIFLORUM	SMALL-FLOWERED TICK-CLOVER			Y
G5	S2	DIAPENSIA LAPPONICA	DIAPENSIA	T		Y
G5	S1	DICENTRA EXIMIA	BLEEDING-HEART	E		Y
G5	S1S2	DIGITARIA FILIFORMIS	SLENDER CRABGRASS	R		Y
G5	S2	DIOSPYROS VIRGINIANA	PERSIMMON	R		Y
G5	SX	DODECATHEON MEADIA	SHOOTING-STAR			Y
G5	S2	DRABA ARABISANS	ROCK-CRESS	R		Y
G4G5	S1	DRABA GLABELLA	ROCK-CRESS	E		Y
G5	S2	DRABA REPTANS	CAROLINA WHITLOW-GRASS	R		Y
G5	S1	DRACOCEPHALUM PARVIFLORUM	AMERICAN DRAGONHEAD	R		Y
G4	SH	DRYOPTERIS CELSA	LOG FERN	V		Y
G5	S1	DRYOPTERIS FRAGRANS	FRAGRANT CLIFF FERN	T		Y
G3T2	SX	ECHINODORUS TENELLUS VAR PARVULUS	BURHEAD			Y

RARE PLANT STATUS LIST
NY Natural Heritage Program

NHP GLOBAL RANK	NHP STATE RANK	SCIENTIFIC NAME	COMMON NAME	STATE LEGAL STATUS	FEDERAL STATUS	NHP LIST?
G5	S1	JUNCUS TRIFIDUS	ARCTIC RUSH	T		Y
G5	S1	JUNIPERUS HORIZONTALIS	PROSTRATE JUNIPER	E		Y
G5T3T4	SX	KOSTELETZKYA VIRGINICA VAR AQUILONIA	SEASIDE MALLOW			Y
G5	SH	KYLLINGIA PUMILA	THINLEAF FLATSEDGE			Y
G4	S1	LACHNANTHES CAROLIANA	CAROLINA REDROOT	T		Y
G5	SH	LACTUCA FLORIDANA	FALSE LETTUCE			Y
G4?	SH	LACTUCA HIRSUTA	DOWNY LETTUCE			Y
G4G5	S3	LATHYRUS OCHROLEUCUS	WILD-PEA	R		Y
G5T4	S1	LECHEA PULCHELLA VAR MONILIFORMIS	PINWEED	T		Y
G5	S2S3	LECHEA RACEMULOSA	PINWEED	R		Y
G5	S2S3	LECHEA TENUIFOLIA	SLENDER PINWEED	R		Y
G5	SH	LEMNA PERPUSILLA	MINUTE DUCKWEED			Y
G5	SH	LEMNA VALDIVIANA	PALE DUCKWEED			Y
G4?	S2S3	LESPEDEZA STUEVEI	LESPEDEZA	R		Y
G5	S1	LESPEDEZA VIOLACEA	LESPEDEZA	R		Y
G3G4	SH	LEUCOPHYSALIS GRANDIFLORA	LARGE WHITE-FLOWERED GROUND-CHERRY			Y
G5	SH	LEUCOSPORA MULTIFIDA	LEUCOSPORA			Y
G5	S1	LIATRIS CYLINDRACEA	SLENDER BLAZING-STAR			Y
G5?TU	S2S3	LIATRIS SCARIOSA VAR NOVAE-ANGLIAE	NEW ENGLAND BLAZING-STAR	R		Y
G5	S1	LIGUSTICUM SCOTICUM	SCOTCH LOVAGE	E		Y
G5	S1	LILIUM MICHIGANENSE	MICHIGAN LILY	E		Y
G5	SX	LIMNOBIUM SPONGIA	AMERICAN FROG'S-BIT			Y

RARE PLANT STATUS LIST
NY Natural Heritage Program

NHP GLOBAL RANK	NHP STATE RANK	SCIENTIFIC NAME	COMMON NAME	STATE LEGAL STATUS	FEDERAL STATUS	NHP LIST?
G5T3	SH	LINDERNIA DUBIA VAR INUNDATA	FALSE-PIMPERNEL			Y
G4G5	S2	LINUM INTERCURSUM	SANDPLAIN WILD FLAX	T		Y
G5T5	S1	LINUM MEDIUM VAR TEXANUM	SOUTHERN YELLOW FLAX	T		Y
G5	S2	LINUM SULCATUM	YELLOW WILD FLAX	R		Y
G5	S1S3	LIPARIS LILIIFOLIA	LARGE TWAYBLADE	R		Y
G3	S1	LISTERA AURICULATA	AURICLED TWAYBLADE	E	C2	Y
G4	S2	LISTERA AUSTRALIS	SOUTHERN TWAYBLADE	R		Y
G5	S1?	LISTERA CONVALLARIOIDES	BROAD-LIPPED TWAYBLADE	V		Y
G5	SH	LITHOSPERMUM CANESCENS	HOARY PUCCOON			Y
G4G5T?	SH	LITHOSPERMUM CAROLINIENSE SSP CROCEUM	GOLDEN PUCCOON			Y
G5	SH	LITTORELLA AMERICANA	AMERICAN SHORE-GRASS			Y
G4G5	S3	LOBELIA NUTTALLII	NUTTALL'S LOBELIA	R		Y
G5	S1	LOISELEURIA PROCUMBENS	ALPINE AZALEA	E		Y
G5	S3	LUDWIGIA SPHAEROCARPA	LUDWIGIA	R		Y
G5	S3	LUZULA CAMPESTRIS VAR BULBOSA	HAIRY WOODRUSH			Y
G5	SH	LUZULA SPICATA	SPIKED WOODRUSH			Y
G5	S1	LYCOPODIUM CAROLINIANUM	CAROLINA CLUBMOSS	E		Y
G5	SH	LYCOPODIUM COMPLANATUM	NORTHERN RUNNING-PINE	V		Y
G5	S1	LYCOPODIUM SABINIFOLIUM	CYPRESS CLUBMOSS	T		Y
G5Q	S1	LYCOPODIUM SITCHENSE	SITKA CLUBMOSS	E		Y
G5	SH	LYCOPUS RUBELLUS	GYPSY-WORT			Y
G4	S1	LYGODIUM PALMATUM	CLIMBING FERN	E		Y
G5	S1	LYSIMACHIA HYBRIDA	LANCE-LEAVED LOOSESTRIFE	T	3C	Y
G5?	S1	LYSIMACHIA QUADRIFLORA	FOUR-FLOWERED LOOSESTRIFE			Y

RARE PLANT STATUS LIST
NY Natural Heritage Program

NHP GLOBAL RANK	NHP STATE RANK	SCIENTIFIC NAME	COMMON NAME	STATE LEGAL STATUS	FEDERAL STATUS	NHP LIST?
G5	S1	LYTHRUM HYSSOPIFOLIA	LOOSESRIFE	R		Y
G5	S1	LYTHRUM LINEARE	SALTMARSH LOOSESTRIFE	E		Y
G5	S1	MAGNOLIA VIRGINIANA	SWEET-BAY			Y
G3G5Q	S1	MALUS GLAUCESCENS	AMERICAN CRAB	R		Y
G5	SH	MELANTHIUM HYBRIDUM	SLENDER BUNCHFLOWER			Y
G5	SH	MELANTHIUM VIRGINICUM	VIRGINIA BUNCHFLOWER			Y
GH	SH	MICRANTHEMUM MICRANTHEMOIDES	MICRANTHEMUM		C1*	Y
G5	S1	MIMULUS ALATUS	WINGED MONKEYFLOWER	R		Y
G5	S3	MINUARTIA CAROLINIANA	PINE-BARREN SANDWORT	R		Y
G4G5Q	S2	MINUARTIA GLABRA	APPALACHIAN SANDWORT	T		Y
G5T5	S2S3	MONARDA FISTULOSA VAR CLINOPODIA	BASIL-BALM	R		Y
G5	SH	MUHLENBERGIA CAPILLARIS	LONG-AWN HAIRGRASS			Y
G3	SH	MUHLENBERGIA TORREYANA	TORREY'S MUHLY		C1	Y
G5	S2	MYRIOPHYLLUM ALTERNIFLORUM	WATER MILFOIL	R		Y
G5	SH	MYRIOPHYLLUM FARWELLII	FARWELL'S WATER MILFOIL			Y
G5	SH	MYRIOPHYLLUM PINNATUM	GREEN PARROT'S-FEATHER			Y
G5TU	S1	NAJAS GUADALUPENSIS VAR OLIVACEA	NAIAD	R		Y
G5	S1	NAJAS MARINA	HOLLY-LEAVED NAIAD	R		Y
G4	S1	NELUMBO LUTEA	YELLOW LOTUS	R		Y
G5	S1	OENOTHERA LACINIATA	CUT-LEAVED EVENING-PRIMROSE			Y
G3?Q	SH	OENOTHERA OAKESIANA	EVENING PRIMROSE			Y
G4	S1	ONOSMODIUM VIRGINIANUM	VIRGINIA FALSE GROMWELL	R		Y
G5	S1	ORYZOPSIS CANADENSIS	CANADA RICEGRASS	E		Y

STATE: NY
QUADCODE: 4107365
QUADNAME: DOVER PLAINS

Dot No.	Ten Ten	Pr	EO Rank	Last Obs	Elem Type	Occ#	Scientific Name
* 1	04,02	SC	B	1985	C	.001	APPALACHIAN CALCAREOUS ROCKY SUMMIT *
* 1	04,02	SC	B	1985	P	.001	ASCLEPIAS VIRIDIFLORA *
* 1	04,02	SC	BC	1986	P	.007	ONOSMODIUM VIRGINIANUM *
* 1	04,02	SC	B	1986	P	.007	CHAMAELIRIUM LUTEUM *
* 1	04,02	SC	B	1987	P	.006	LIATRIS SCARIOSA VAR NOVAE-ANGLIAE *
* 2	04,02	SC	A	1987	P	.001	BOUTELOUA CURTIPENDULA *
* 2	04,02	SC	A	1987	P	.001	LINUM SULCATUM *
3							
4							
5	04,04	SC	AB	1986	P	.002	CHAMAELIRIUM LUTEUM
6	08,10	S		1946	A	.006	CLEMMYS MUHLENBERGII
7							
8							
* 9	04,02	SC	AB	1986	P	.003	DRABA REPTANS *
10	08,08	M	E	1982	A	.013	CLEMMYS MUHLENBERGII
11	03,07	M		1939	A	.029	CLEMMYS MUHLENBERGII
12	04,04	SC	BC	1986	C	.002	APPALACHIAN CALCAREOUS ROCKY SUMMIT
12	04,04	SC	B	1986	P	.003	LINUM SULCATUM
12	04,04	SC	B	1986	P	.002	BOUTELOUA CURTIPENDULA
12	04,04	SC	D	1986	P	.006	ASCLEPIAS VIRIDIFLORA
12	04,04	SC	B	1986	P	.007	CAREX BICKNELLII
12	04,04	SC	BC	1987	P	.006	DRABA REPTANS
13							

STATE: NY
QUADCODE: 4107365
QUADNAME: DOVER PLAINS

Dot No.	Ten Ten	Pr	EO Rank	Last Obs	Elem Type	Occ#	Scientific Name
14							
15							
16							
* 17	04,02	SC	BC	1986	P	.006	CHAMAELIRIUM LUTEUM *
18							
19							
20	05,04	SC	D	1986	P	.003	LIPARIS LILIIFOLIA
20	05,04	SC	BC	1986	P	.005	CAREX BICKNELLII
21							
22							
* 23	06,02	SC	AB	1986	P	.002	DRABA REPTANS *
* 23	06,02	SC	AB	1986	P	.008	CAREX BICKNELLII *
* 23	06,02	SC	AB	1986	P	.002	LINUM SULCATUM *
* 23	06,02	SC	CD	1986	P	.007	ASCLEPIAS VIRIDIFLORA *
* 23	06,02	SC	B	1986	C	.004	APPALACHIAN CALCAREOUS ROCKY SUMMIT *
* 23	06,02	SC	B	1986	C	.015	RICH GRAMINOID FEN *
24							
25							
26	04,09	SC	C	1986	P	.009	CAREX BICKNELLII
27	05,04	SC	BC	1986	P	.007	LINUM SULCATUM
27	05,04	SC	BC	1986	P	.010	CAREX BICKNELLII
28							
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REFERENCE 8

United States Department of Agriculture
Soil Conservation Service
P.O. Box 37
Millbrook, NY 12545
914-677-3194

August 9, 1989

Edward A. Maikish, P.E.
Lawler, Matusky & Skelly Engineers
One Blue Hill Plaza
P.O. Box 1509
Pearl River, NY 10965

Dear Mr. Maikish:

Enclosed are the soils maps with prime soils marked for the nine landfill locations that you requested. The distance to prime soils for each site are:

Landfill Site	Distance to Prime Soils (miles)
Pardee	1.25
Rt. 22 Eastside	On-Site
LaGrange Town	0.3
Pawling Village	On-Site
Pleasant Valley Town	0.25
Crickett Hill	On-Site
Rt. 22 Westside	0.25
Clinton Town	0.4
Fishkill Town	On-Site

Please feel free to contact me if you need additional information.

Sincerely,

Robert F. Dibble
District Conservationist

RFD/bas

Enclosures

Prime Soils

Aa - Albia Gravelly Silt Loam, gently sloping
Ad - Amenia Silt Loam
Cb - Chagrin Gravelly Loam, alluvial fanphase
Cc - Chagrin Silt Loam
Cj - Claverack Gravelly Loam
Cn - Copake Fine Sandy Loam, nearly level to undulating phase
Cp - Copake Gravelly Loam, nearly level to undulating phase
Ea - Eel & Lobdell Silt Loams, undifferentiated
Eb - Elmwood Fine Sandy Loam
Ge - Genesee Fine Sandy Loam
Me - Merrimac Gravelly Fine Sandy Loam
Oa - Ondawa Gravelly Loam, alluvial fanphase
Pb - Palmyra Gravelly Loam, nearly level to undulating phase
Pd - Pawlet Silt Loam

Statewide Important Soils

Bc - Bernardston Gravelly Silt Loam, sloping
Be - Braceville, Haro, Phelps Silt Loams, undifferentiated
Cf - Charleton Gravelly Loam, undulating to sloping
Ct - Cossayuna Fine Sandy Loam, undulating to rolling
Cx - Cossayuna Gravelly Loam, undulating to rolling
Dk - Dutchess Gravelly Silt Loam - undulating to rolling
He - Hoosic Fine Sandy Loam, nearly level to undulating
Hg - Hoosic Gravelly Loam - nearly level to undulating
Hl - Hoosic Gravelly Sandy Loam, nearly level to undulating
Hm - Hoosic Loam
Ho - Hudson Fine Sandy Loam, gently sloping
Hp - Hudson Silt Loam, gently sloping
Hu - Hudson Silty Clay Loam, gently sloping
Ke - Kendaia Silt Loam
Me - Medalin Silt Loam
Nc - Nassau/Cassayuna Gravelly Loams, undulating to rolling
Ng - Nassau Slaty Silt Loam, undulating to rolling
Pf - Pittsfield Gravelly Loam, sloping phase
Pl - Pittsfield-Wassaic Gravelly Loams, undulating to rolling
Pm - Pittstown Gravelly Silt loam, nearly level to gently sloping
Pn - Poultney Loam
Po - Poultney Silt Loam
Rb - Rhinebeck Silt Loam
Rc - Rhinebeck Silty Clay Loam
Sg - Stissing Gravelly Silt Loam
Sk - Stockbridge Gravelly Loam, gently sloping to sloping
Sn - Woodbridge Silt Loam
Tc - Troy Gravelly Loam, gently sloping phase
Te - Troy Gravelly Loam, sloping phase
Wd - Wassaic Gravelly loam, rolling phase
Wg - Paxton Gravelly Loam, gently sloping to sloping


Site
The Stone Church
Fox Hill
Nellie Hill
Dusk Pond
Depression Pond
Preston Hill
Tamarack Swamp
Note: Site incorrectly identified. Actual site is further north as shown
NEW YORK

REFERENCE 9

STATE OF NEW YORK

DEPARTMENT OF CONSERVATION

WATER RESOURCES COMMISSION

Ground-Water Resourses of Dutchess County, New York

By

E. T. SIMMONS, I. G. GROSSMAN, AND R. C. HEATH

Geologists, U. S. Geological Survey

Prepared by the

U. S. GEOLOGICAL SURVEY

in cooperation with the

NEW YORK WATER RESOURCES COMMISSION

BULLETIN GW-43

ALBANY, N. Y.

1961

In physical appearance, most of the granite and gneiss consists of light and dark minerals presenting a speckled appearance (granite) or arranged in layers (gneiss). The light minerals consist chiefly of quartz, feldspar, and white mica (muscovite). The dark minerals include black mica (biotite), garnet, and hornblende. Extensive and readily accessible exposures of gneiss can be seen in road cuts along the Taconic State Parkway near the Putnam County line. These rocks are more resistant to weathering than the younger Paleozoic rocks, as is reflected by the more rugged topography and higher altitudes in areas where they crop out. Most of the layers (foliation) in the granite and gneiss strike northeast, approximately parallel to the long axis of the Hudson Highlands, and dip steeply to the southeast. Exceptions occur near thrust faults where the strike and dip of the foliation parallel the faults. Most of the large and prominent spurs underlain by granite and gneiss in the southern part of the county point northeastward, and the long axes of the smaller bodies also are alined in that direction.

Cheshire quartzite.--A compact, strong quartzite, which is so tough that it is deliberately avoided by some drillers, crops out at a few localities in Dutchess County. This quartzite has been called the Poughquag quartzite by Berkey and some other geologists working in New York. It is called the Cheshire quartzite in this report, after its type locality at Cheshire, Berkshire County, Mass. (Emerson, 1917, p. 32-34). The quartzite unconformably overlies the Precambrian granite and gneiss and is the oldest Paleozoic rock in the county. In the southern and eastern parts of the county the quartzite forms the flanks of the higher ridges that are underlain by granite and gneiss. In the east-central part of the county, quartzite underlies several areas along the southern and western borders of the granite and gneiss in the vicinity of Dover Plains. Quartzite is present also in the southern part of Stissing Mountain in the north-central part of the county.

The Cheshire quartzite ranges in thickness from a few feet to about 600 feet. A thickness of about 250 feet has been reported at Stissing Mountain (Knopf, 1956, p. 11). The base of the formation may be conglomeratic and the top contains shaly beds in some places. In general, the quartzite is less strongly metamorphosed in the west than in the east. Some outcrops in the western part of the county still retain original sedimentary features, including bedding, crossbedding, and ripple marks. In the southeast, however, the original bedding has been destroyed by fracturing and recrystallization.

Where the Cheshire quartzite is composed almost entirely of quartz, it is white. Where small amounts of feldspar, mica, and other impurities are mixed with the quartz, it is pink or buff.

The Cheshire is not important as a source of ground water because of its small areal extent and because it underlies steeply sloping hillsides which are sparsely settled. Only five wells in the county are known to tap quartzite; these are listed in table 13.

Stockbridge limestone.--Over the Cheshire quartzite is a thick sequence of carbonate rocks, which underlie a much greater part of the county than the quartzite. In the east, carbonate rocks lie beneath the broad Harlem Valley, which contains Tenmile River and its principal tributaries and which extends almost without interruption from the Putnam County line to the Columbia County line. In the south, the valley of Fishkill Creek is underlain by limestone which extends from Beacon northeastward to the head of the creek. Other areas in the western and central parts of the county also are underlain by elongate masses of carbonate rocks (pl. 2).

Several different names have been applied to the carbonate rocks in different parts of the county, including Barnegat limestone (Mather, 1843, p. 410), Fishkill limestone (Gordon, 1911, p. 70), and Wappinger limestone (Gordon, p. 48). Knopf (1956, p. 1817) found that the carbonate rocks near Stissing Mountain range in age from Early Cambrian to Early Ordovician and divided them into the Stissing dolomite, Pine Plains formation, Briarcliff, dolomite, Halcyon Lake formation, and Rochdale limestone. Because there appear to be no essential differences in the water-bearing properties of the carbonate rocks, all are included in this report under the Stockbridge limestone, after the locality in Massachusetts where they were first described (Emmons, 1842, p. 154-156).

The carbonate rocks range in composition from almost pure calcium carbonate (limestone) to almost pure calcium-magnesium carbonate (dolomite). Limestone is more abundant in the upper part of the sequence and dolomite is more common in the lower part. Table 3 lists an analysis of a typical sample of dolomite from the Stockbridge limestone.

This analysis shows that more than 10 percent of the dolomite consists of impurities, chiefly silica and alumina. In some localities these impurities are abundant enough to form sandy and shaly beds in the Stockbridge.

Table 3.--Chemical composition of dolomite 1/ from the Stockbridge limestone

Determination	Percent by weight
Lime (CaO)	29.07
Magnesia (MgO)	16.29
Carbonic acid (H_2CO_3)	40.76
Alumina (Al_2O_3)	2.33
Ferric oxide (Fe_2O_3)	.47
Silica (SiO_2)	10.17
Total	99.09

1/ Collected at the Stoneco quarry of the Clinton Point Stone Co. about 4 miles south of Poughkeepsie. Analysis from Ries (1901, p. 779).

The metamorphism of the Stockbridge limestone generally increases in intensity from northwest to southeast. In the northwest and west, the formation is relatively undisturbed and original bedding is easily visible. Fossils have been found in the formation as far south as Clove Valley. Farther east, however, as in the Valley of Swamp River, the formation has been metamorphosed to a marble and the beds are severely folded. Balk noted that the folding is greater in the thin layers than in the thicker ones and that it is greatest near thrust faults. In the southeastern part of the county, the marble has been so severely deformed by plastic flow that it appears to be wrapped around stronger rocks. South of Pawling, the marble contains masses of schist that are folded and faulted into the limestone.

The deformation of the Stockbridge limestone makes it difficult to determine its thickness. In southwestern Putnam County, where the formation is relatively undisturbed, the thickness is about 1,000 feet. At Stissing Mountain, near Pine Plains in the north-central part of Dutchess County, the thickness of the different limestones and dolomites measured by Knopf (1946, p. 1211) totals 2,800 feet. The thickness of the carbonate rocks is

probably about 1,000 feet in most places in the county. The Stockbridge limestone weathers readily and commonly forms valley and lowland areas. In the valley of Fishkill Creek, solution cavities filled with clay and sand have been reported.

Hudson River formation.--The Hudson River formation is the most extensive bedrock unit in the county. As may be seen from plate 2, it extends from the Hudson River in the west to the Connecticut State line in the east, interrupted by only a few relatively narrow limestone belts. The name "Hudson River slate group" was first used by Mather (1840, p. 212, 256-258) for the slaty rocks in the southeastern part of the State. Gordon (1911) mapped these rocks in the Poughkeepsie quadrangle as the "Hudson River group." Berkey and Rice (1921) mapped the same rocks in southwestern Dutchess County as "Hudson River shales and phyllites." In the southeastern part of the county these rocks are referred to as "Hudson River pelite" in publications by Balk (1936) and Barth (1936). In the Copake quadrangle in southeastern Columbia County, the names Elizaville shale (mainly Cambrian, possibly including some Lower Ordovician), Berkshire schist (Ordovician), and Trenton black slate (Ordovician) have been used by Weaver (1957, pl. 1) for rocks that extend southward into northeastern Dutchess County. Ruedemann (1942) divided the predominantly argillaceous rocks in the Catskill quadrangle, in northwestern Dutchess County, into the Nassau beds and Schodack shale (including Bomoseen grit) of Cambrian age, and the Deepkill shale and Normanskill shale (including the Mount Merino member and the Austin Glen member) of Ordovician age. As used in this report, the Hudson River formation includes all the argillaceous and schistose rocks in Dutchess County.

Although the Hudson River formation is preponderantly argillaceous, it includes a large variety of rock types. The lower part of the unit contains much sandstone ("grit") and is locally called bluestone by some well drillers. The unit also contains chert and beds of sandstone, limestone, and conglomerate. Quartz veins are very abundant. The shale itself is locally black, gray, red, or green.

The metamorphism of the Hudson River formation increases in intensity from northwest to southeast, just as in the Stockbridge limestone. At Red Hook, in the northwestern part of the county, the unit is a shale. The shale grades imperceptibly southeastward into a slate and then into a lustrous phyllite. Between the valley of Wappinger Creek and the headwaters of Fishkill Creek, it is chiefly a phyllite. Farther southeast, between Fishkill Creek and the Harlem Valley it is predominantly a garnet-bearing schist. In the extreme southeastern part of the county, east of Pawling, it is a gneissic schist. The gneissic schist in this area contains amphibolite lenses and pegmatite intrusions.

derived from glacial till. These samples consisted mainly of calcareous sandstone and some admixed shale, slate, limestone, and igneous erratics. The samples were collected from progressively greater depths. The analyses show that more than half of each sample consisted of silt and clay, and that the content of sand and fine gravel increased slightly from a low of 36.3 percent (by weight), at a depth of 0 to 10 inches, to a high of 43.0 percent, at a depth of 68 to 144 inches. In some areas, lenses of relatively clean sand may occur in till. However, sand lenses in till are generally thin and of small areal extent. Most of the till is clayey and some of it may even be cemented or compacted to form a tough aggregate referred to as "hardpan" by local drillers.

Lacustrine deposits.--Stratified drift deposited in glacial lakes underlies several areas in the county, notably along the Hudson River and in the lowland north of the Hudson Highlands in the southwestern part of the county. The approximate extent of these deposits where they compose the uppermost unconsolidated deposit is shown on plate 3. As may be seen from the plate, they underlie an irregularly shaped and relatively extensive area in the northwestern corner of the county, from the mouth of Crum Elbow Creek north to the county line. In the southwestern part of the county, they underlie numerous small areas from Poughkeepsie south to the Highlands.

Woodworth (1905, p. 175) believed that the lacustrine deposits along the Hudson River were laid down in one large lake, called glacial Lake Albany, which was dammed by a single tongue of stagnant ice. Cook (1942, p. 192) suggests, on the other hand, that the deposits were laid down in a complex series of small lakes rather than in a single lake. These lakes were largely restricted to the area adjacent to the Hudson River in the western part of the county. Thus, lacustrine deposits either are not present in the eastern part of the county or, if present, occupy relatively small areas and are covered by other unconsolidated deposits which obscure their presence.

The lacustrine deposits in the western part of the county contain layers of silt and clay that were deposited in those parts of the lakes in which the water was relatively quiet. The deposits also contain interbedded layers of sand and silt that were laid down near the mouths of streams entering the lakes. At the time the lakes drained, the lacustrine deposits formed a terrace that sloped westward toward the present channel of the Hudson River. The altitude of the terrace ranges from about 220 feet near its eastern margin to about 120 feet near the river. This terrace has been considerably modified by postglacial stream erosion.

Sand and gravel.--Stratified drift consisting principally of sand and gravel underlies extensive areas in the major stream valleys and in some tributary valleys. As shown in plate 3, the most extensive deposits are in the valleys drained by Fishkill Creek, Sprout Creek, Swamp River, Tenmile River, and Wappinger Creek.

Most of the sand and gravel consists of stream-laid deposits, called outwash, laid down by melt water streams. The deposits range from layers of relatively clean sand to layers composed of a mixture of sand and gravel. The alternation of layers of coarse and fine material reflect changes in the conditions under which the beds were laid down.

Stratified sand and gravel in the county occurs in four principal forms: kames, kame terraces, valley trains, and deltas. Kames, in the form of small conical hills, are relatively common in the extreme southern part of the county at the northern margin of the Hudson Highlands. They are present also between the Hudson River and U.S. Highway 9, about 3 miles south of Poughkeepsie. Kame terraces, relatively flat topped deposits of sand and gravel on the sides of valleys are prominent in the valley of Swamp River. They have also been observed by Woodworth (1905, p. 121) along the Hudson River between Poughkeepsie and the mouth of Wappinger Creek. Valley-train deposits are long and narrow deposits of sand and gravel underlying valley floors. These deposits underlie parts of many of the principal stream valleys, including those of Wappinger Creek, Fishkill Creek, Webatuck Creek, Crum Elbow Creek, and Tenmile River (pl. 3). Delta deposits laid down where melt water streams entered glacial lakes, have been mapped at New Hamburg, at the mouth of Wappinger Creek, by Woodworth (p. 119) and have been observed also in the Valley of Swamp River. There are large deltas also at Rhinebeck and Red Hook. Deposits of sand and gravel in the principal stream valleys of the county are discussed in greater detail in the section devoted to the occurrence of water in unconsolidated deposits.

GROUND WATER

Source and Movement

Ground water occurs in all the consolidated and unconsolidated deposits of Dutchess County. Records of 675 wells (table 13) and about 50 springs (table 9) provide information on its occurrence in the different deposits.

Practically all ground water in the county is derived from local precipitation. An inch of rain, or snow having a water content equivalent to 1 inch of rain, falling on an area of 1 square mile yields about 17 million gallons of water. The average annual precipitation is about 45 inches, or about 1.6 billion gallons per day, on the 816 square miles of the county.

A large part of the precipitation returns to the atmosphere by evaporation, is transpired by vegetation, or runs off to streams. The remainder percolates into the ground. The amount of precipitation entering the ground depends chiefly on (1) the porosity, permeability, and water content of the surficial deposits, (2) the slope of the land, (3) the amount and kind of vegetal cover, and (4) the intensity and amount of precipitation. It is

yields have been reported is 3 gpm (gallons per minute) with a range from 1 to 4 gpm. The yields of most wells that draw from till are not known, because pumps are operated for only short periods and draw largely from water stored in the well. In general, wells tapping till may be expected to yield only a few hundred gallons a day.

The permeability of till is very low, and hence the movement of ground water into and through the deposit is extremely slow. As a result, most of the precipitation on areas underlain by till either runs off on the surface or is intercepted by plants to satisfy transpiration needs before it can reach the water table. Most wells drawing water from till are dug only a few feet below the water table. Thus, during dry periods many of these wells either "go dry" or fail to yield the required quantity of water. Most wells in Dutchess County reported to have been inadequate one or more times since construction, or to have failed completely, are dug wells tapping glacial till. Many of these wells are on hills, and the failures are largely due to seasonal decline of the water table.

Deposits in Valleys

The thickest unconsolidated deposits in Dutchess County occur in valleys and other lowland areas. These deposits consits of (1) till, (2) fine-grained stratified deposits of silt and clay, and (3) coarse-grained stratified deposits of sand and gravel. Plate 3 is a map of the county showing the principal unconsolidated deposit in each area. Areas shown as underlain by till generally do not contain any other unconsolidated deposit. Till in many of the valley areas underlies low irregularly shaped hills that are surrounded by stratified deposits. In other areas, as at Pawling in the southeast corner of the county, the till extends from the uplands across the lowlands as a relatively continuous sheet. Till in the lowlands is generally thicker than in the uplands. Its average thickness is probably between 25 and 50 feet, though the actual thickness in some areas exceeds 100 feet. The water-bearing characteristics of the till are similar to those of the till in the uplands.

The fine-grained stratified deposits are widely distributed throughout most valley areas. Those areas in which the unconsolidated deposits consist entirely or almost entirely of clay and silt are shown on plate 3. However, fine-grained stratified deposits are present also in many of the areas shown on the map to be underlain by sand and gravel. In these areas the clay and silt may either overlie, be interbedded with, or underlie the sand and gravel. Plate 3 shows that most of the areas in which clay and silt is the principal unconsolidated deposit are in the western part of the county, either adjacent to or near the Hudson River. These deposits are generally less than 50 feet thick, although they are as much as 125 feet thick in the area bordering the Hudson River south of Rhinebeck.

In view of the extremely low permeability of the clay and silt, the deposit will not yield water in usable quantities to wells and springs. In those areas in which clay and silt is the only or the principal unconsolidated deposit, ground-water supplies can be obtained only from the underlying bedrock. Although clay and silt is not important as a source of water, it exerts considerable influence on the occurrence of water. On the terraces adjacent to the Hudson River in the northwestern part of the county the clay and silt retards or prevents recharge to the underlying bedrock. Conversely, in the lower parts of many of the valleys the clay and silt retards upward leakage of water from the underlying beds of sand and gravel and bedrock. In these areas the water in the sand and gravel and in the bedrock occurs under artesian conditions, and in a few places is under sufficient pressure to flow at the land surface.

The sand and gravel is the most productive water-bearing deposit in the county. Plate 3 shows that this material underlies most of the lower part of the main valleys and many of the larger tributary valleys. The sand and gravel appears to have been laid down by swift-flowing streams of glacial melt water which were heavily laden with rock debris derived from the melting ice. As both the character and the amount of rock debris carried by the streams varied considerably from time to time, the thickness, character, and extent of the sand and gravel deposits vary considerably within relatively short distances. The beds of sand and gravel are associated with beds of silt and clay almost everywhere. In some areas wells penetrate as many as two or three distinct layers of sand and gravel, which are interbedded with layers of silt and clay. The layers of sand and gravel are generally less than 25 feet thick, although in some areas they are as much as 50 feet thick.

Deposits of sand and gravel are utilized extensively as a source of water supply. In these deposits small-diameter driven wells with screened drive points will generally yield water in sufficient quantity for domestic, farm, and small commercial needs. The moderate to large quantities of water needed by municipalities and industries can generally be obtained from large-diameter drilled wells. According to the quantity of water required and the character of the deposit, such wells may be either screened or finished with open-end casings. A comparison of the yield of screened and unscreened wells is shown in table 5. The yield of unscreened wells for which records were collected ranged from 3 to 200 gpm and averaged 38 gpm. The yield of screened wells ranged from 20 to 800 gpm and averaged 318 gpm.

The thickest section of unconsolidated deposits in the county underlies the present channel of the Hudson River. These deposits range in character from clay and silt to gravel and boulders. Berkey and Rice (1921, pl. 47a) indicate that more than 100 feet of sand underlies the river in the southeastern part of the county, about 0.1 mile north of the Putnam County line. The sand underlies about 100 feet of silt and clay and is underlain in turn by clay and by gravel, cobbles, and boulders. The sand is not continuous across the river but lenses out laterally. It also

Table 6.--Yield of wells tapping bedrock in Dutchess County

Water-bearing unit	Yield (gpm)			Number of wells	Remarks
	Average	Range			
		Low	High		
Hudson River formation	16	0	135	311	Most wells tap slate or phyllite; few tap schist or gneiss.
Stockbridge limestone	22	1	220	118	Does not include well Du 630.
Cheshire quartzite	10	2	30	5	Includes 3 wells penetrating both quartzite and other rocks.
Undifferentiated granite and gneiss	11	1	45	20	
All bedrock combined	17	0	220	454	

Table 6 shows that the yield of wells is related to the type of bedrock. The Stockbridge limestone is the most productive bedrock formation in the county, yields averaging about 22 gpm and ranging up to 220 gpm. The larger yields may indicate that joints and other openings in this formation have been enlarged by solution, although the lack of outcrops and generally thick cover of unconsolidated deposits effectively prevent observation of solutional effects. The Hudson River formation, which is the most widespread bedrock aquifer, is the second most productive. Yields from 311 wells in this unit average 16 gpm and range up to 135 gpm. The yields of 25 wells tapping granite and gneiss and the Cheshire quartzite are generally small, averaging about 10 or 11 gpm. Although some of these averages are based on a comparatively small number of records, they are believed to be representative. For example, the yields of 288 wells tapping granite and gneiss in adjacent Putnam County (Grossman, 1957, table 8) average 11 gpm.

The type of overlying material has an important effect on the yield of wells in bedrock. Table 7 shows that the average yield of wells tapping bedrock that is overlain by sand and gravel is more than 30 gpm. By contrast, the average yield of bedrock wells where the overlying material consists predominantly of clay or till is only about 13 gpm. Deposits of sand and gravel store large amounts of water and transmit water readily to the underlying bedrock where hydraulic continuity exists between the two materials. However, some of the large yields reported from bedrock wells overlain by sand and gravel may result from leakage of water from the overlying permeable deposits directly into the well. The yield of wells in bedrock where the overlying unconsolidated deposits are absent or are less than 10 feet thick is about the same, or only a little greater, than of wells where the overlying deposits are thicker but consist of impermeable till or clay. Thus, it may be concluded that thick but impermeable deposits which tend to retain the water above the bedrock have about the same effect on yield of bedrock as no overlying material at all.

Topographic location apparently affects the yield of bedrock wells in some areas (Ellis, 1909, p. 101). In Dutchess County, the yield is generally highest from bedrock wells situated in valleys and is lowest on hills. Table 8 shows that the average yield of wells in valleys is about 20 gpm compared to an average of about 16 gpm for wells on hillsides and an average of about 12 gpm for wells on hilltops. The Cheshire quartzite is not included in the table because only a few records of wells drawing from this formation are available. The influence of topography on the yields of wells apparently stems, at least in part, from the fact that the water table is generally closer to the land surface in valleys than on hills. Thus, wells of the same depth penetrate a greater thickness of saturated material in valleys than on hills and yield more water, other things being equal.

It should be emphasized that the factors affecting the yield of wells in bedrock are interdependent and tend to operate in the same direction. Thus, most wells drilled in valleys have comparatively large yields not only because of their favorable topographic location but also because the bedrock there is more permeable and is more likely to be overlain by permeable sand and gravel. Similarly, most wells drilled on hills yield smaller quantities of water not only because of a less favorable topographic situation, but also because the bedrock is less likely to be overlain by permeable deposits.

Amenia.--Amenia (population 800) is supplied from two wells, Du 99 and Du 100, owned by the Amenia Water Co. Consumption averages about 100,000 gpd and maximum consumption is about 150,000 gpd.

Beacon.--Beacon (population 14,000) was formerly supplied entirely by the Cargill, Mount Beacon, and Melzingah reservoirs, with capacities of 160 million, 124 million, and 55 million gallons, respectively. The supply became inadequate during dry periods in the decade 1940-50, and additional water was pumped from Fishkill Creek. In 1948 and 1949 several test wells were drilled in the Fishkill Valley, about 4 miles northeast of Beacon, to determine whether a satisfactory ground-water supply could be obtained (see table 13, wells Du 626 and Du 630). Well Du 630, which was completed in 1950, reportedly yielded 1,400 gpm. The average consumption from ground-water and surface-water sources is 1,750,000 gpd. All water is chlorinated before distribution.

Dover Plains.--Prior to 1957, water for the village of Dover Plains (population 700) was obtained entirely from Seven Wells Brook. Since 1957, the supply has been supplemented with water from a drilled well. Distribution is effected by gravity. The maximum consumption is 120,000 gpd but the average is about 75,000 gpd. About 90 percent of the water is used by industries. The water is chlorinated.

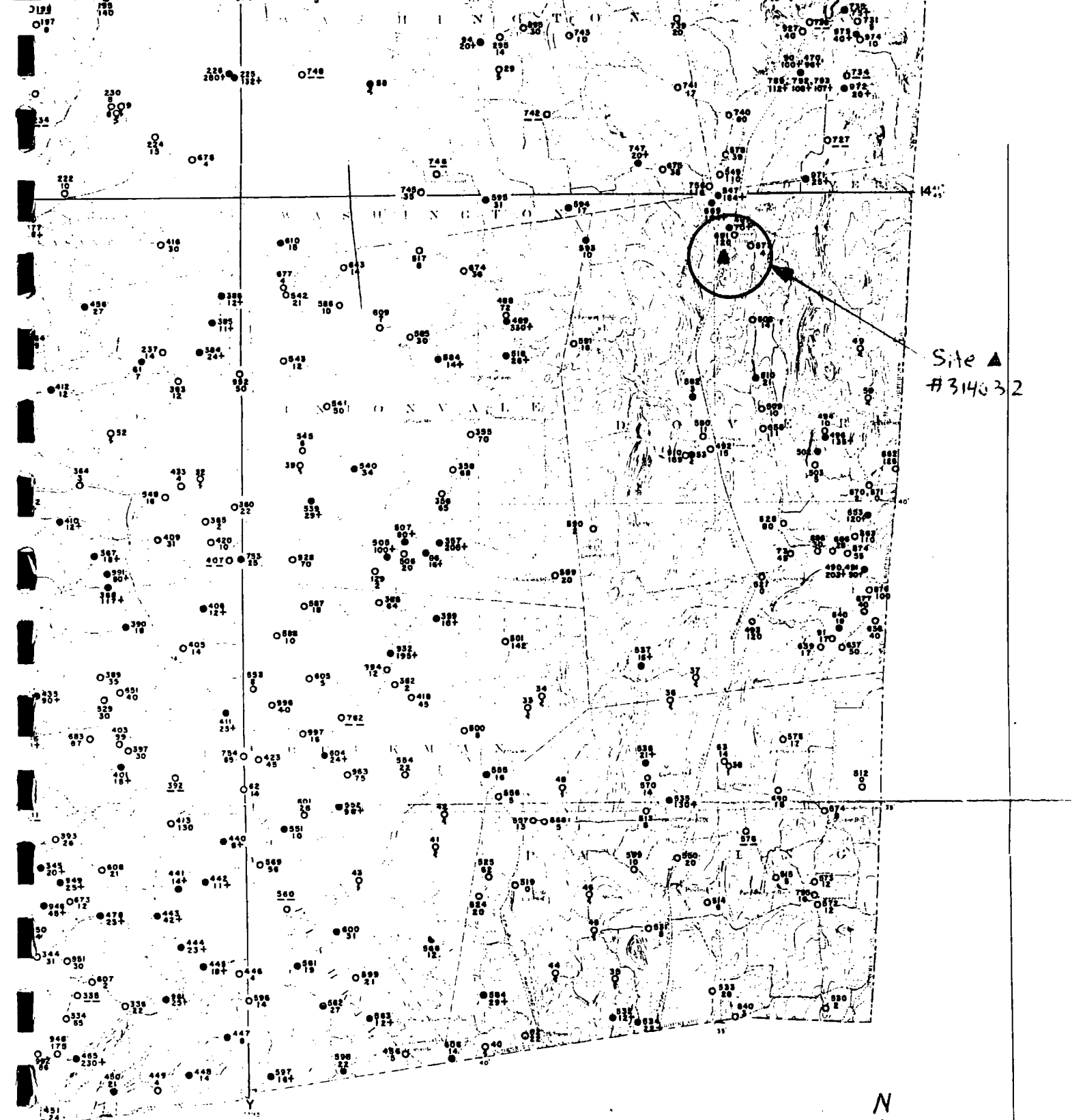
Fishkill.--Fishkill (population 720) is supplied by water from Hell Hollow Brook and Clover Brook. The water from these streams is stored in a reservoir with a capacity of 6 million gallons, situated 5 miles south of the village. Water is distributed from the reservoirs by gravity. It is chlorinated and copper sulfate also is used to control the growth of algae in the reservoir when the water supply is low. The average consumption is 125,000 gpd but the maximum reaches 500,000 gpd.

Hyde Park.--Hyde Park (population 1,200) obtains water from Crum Elbow Creek. Consumption averages 50,000 gpd and rises to a maximum of 60,000 gpd. Treatment includes chlorination, coagulation, and filtration.

Millerton.--Millerton (population 953) is supplied by two wells, Du 166 and Du 167, and auxiliary springs. Consumption is reported to average 150,000 gpd. Chlorination is the only treatment.

Pawling.--Pawling (population 1,446) is supplied by a surface reservoir with a capacity of 30 million gallons, situated about 4 miles northwest of the village. Consumption is reported to be 150,000 gpd and maximum consumption is 170,000 gpd. Treatment consists of chlorination.

Pine Plains.--The Pine Plains Water Co. supplies water to 90 percent of Pine Plains (population 700) from dug and drilled wells. A dug well, Du 96, is 15 feet deep and is reported to yield 50 gpm. Two drilled wells, Du 97 and Du 680, yield 50 gpm and 220 gpm, respectively, from limestone. Average consumption is 45,000 gpd and the maximum is 60,000 gpd.



EXPLANATION

SPRINGS	WELLS	WATER-BEARING MATERIAL
♀	○	Bedrock
♀	●	Unconsolidated deposits
♀	◑	Bedrock and unconsolidated deposits
♀	⊙	Unknown

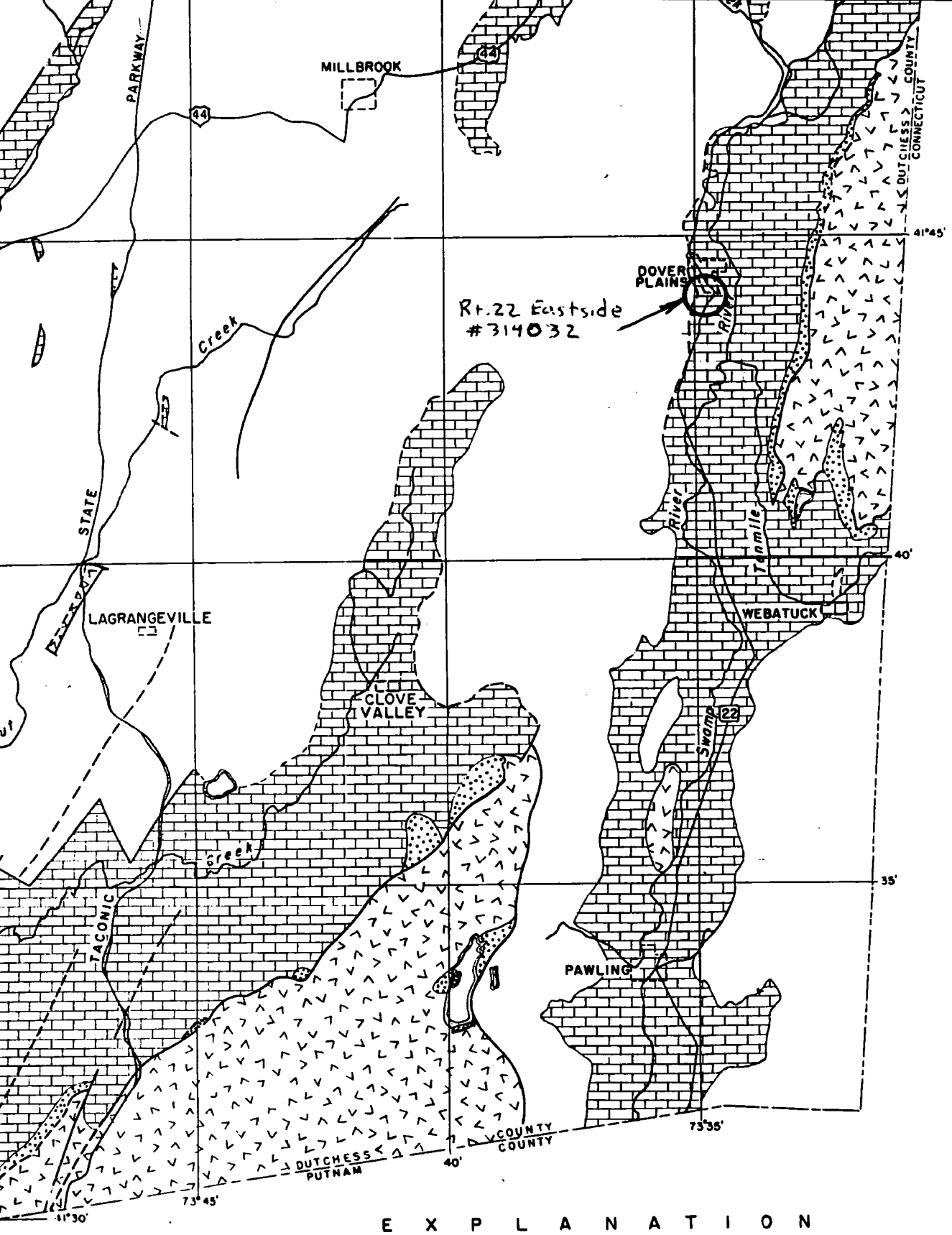
indicates type of water-bearing material. Upper figure is well or spring number with prefix "Du" and; suffix "Sp" also omitted in spring numbers. Lower figure is thickness, in feet, of unconsolidated deposits. Plus sign (+) following lower figure indicates that thickness of unconsolidated deposits is known but is greater than figure given.

SCALE

1 0 1 2 Miles

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

PLATE 1



E X P L A N A T I O N

Cheshire quartzite
(Early Cambrian)
Unimportant as a water-bearing formation because of small areal extent.

Hudson River formation
(Ordovician)
Chiefly slate and phyllite in west and schist in east. Yields small supplies of water.

Undifferentiated granite and gneiss
(Precambrian)
Medium- to coarse-grained igneous and metamorphic rocks. Yields small supplies of water.

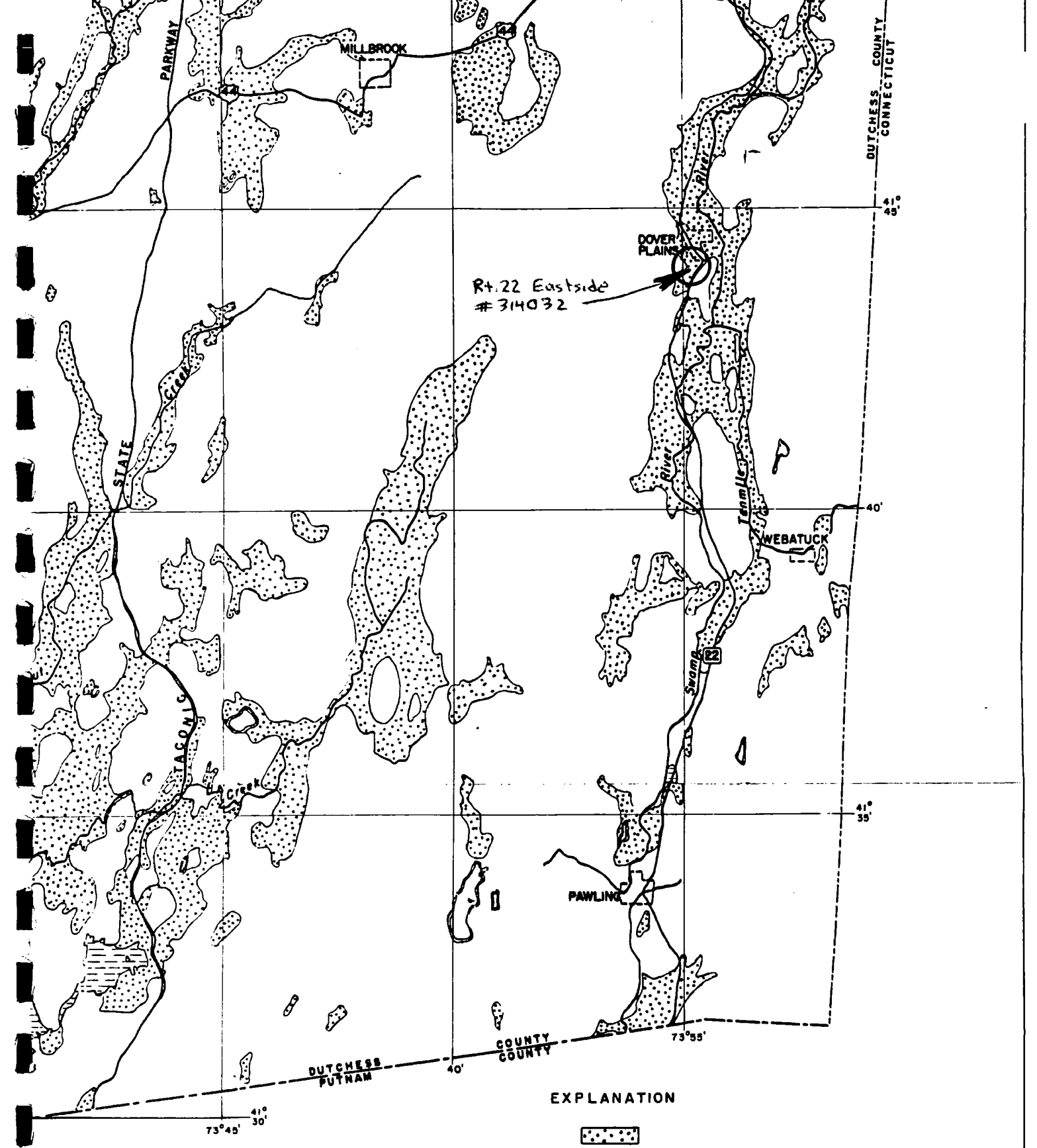
Stockbridge limestone
(Ordovician and Cambrian)
Limestone, dolomite and marble. Most productive bedrock aquifer.

Fault
Known Inferred

Berkey and M Rice,
Werthin, Jr., and J. Weaver.

3 4 Miles

PLATE 2



EXPLANATION

Sand and gravel

Principally stratified deposits laid down in lowland areas by glacial melt waters. Yields moderate to large supplies of water.

Lacustrine deposits

Fine-grained stratified deposits laid down in glacial lakes. Yields little or no water. Generally acts as a confining bed where underlain by permeable deposits.

Till

Chiefly unstratified mixture of clay, sand, gravel, and boulders. Widespread on steep slopes and hilltops. Yields small supplies of water to large-diameter dug wells.

3 4 Miles

PLATE 3

REFERENCE 10

STATE OF NEW YORK

OFFICIAL COMPILATION

OF

CODES, RULES AND REGULATIONS

HUGH L. CAREY
Governor

CHARLES E. WILLIAMS III
Acting Secretary of State

Published by
DEPARTMENT OF STATE
162 Washington Avenue
Albany, New York 12231

10/82

825.6 Table I.

TABLE I

Classifications and Standards of Quality and Purity Assigned to Fresh Surface Waters within the Housatonic River Drainage Basin, Dutchess and Columbia Counties, State of New York

Item No.	Waters Index Number	Name	Comments	Map Ref. No.	Class	Standards
1	Conn. 12 portion	Tributary of Housatonic River	From New York-Conn. state line to 1000 ft. upstream.	O-25se	B	B
2	Conn. 12 portion and trib. 12-1	Tributary of Housatonic River and subtributary	From 1000 ft. upstream from state line to source.	O-25se	C	C
3	Conn. 14 portion	Tributary of Housatonic River	From New York-Conn. state line to 1000 ft. upstream.	O-25se	B	B
4	Conn. 14 portion	Tributary of Housatonic River	From 1000 ft. upstream from state line to source.	O-25se	C	C(TS)
5	Conn. 14-P 112	Brady pond		O-25se	C	C
6	Conn. 15 portion	Tenmile River	From New York-Conn. state line to Lake Ellis Road Bridge.	O-25ne	B	B(T)
6a	Conn. 15 portion	Tenmile River	From Lake Ellis Road Bridge to trib. 6.	O-25ne	C	C(T)
7	Conn. 15 portion	Tenmile River	From trib. 6 to trib. 7.	O-25ne	B	B(T)
8	Conn. 15 portion	Tenmile River	From trib. 7 to source.	N-25se	C	C(T)
9	Conn. 15-1	Tributary of Tenmile River		O-25ne	C	C(T)

1399 CN 4-30-86

TABLE I (*con'td.*)

Item No.	Waters Index Number	Name	Comments	Map Ref. No.	Class	Standards
67	Conn. 15-4-15-P 1117-1	Tributary of Green Mountain Lake		O-25sw	C	C
68	Conn. 15-4-16	Tributary of Swamp River		O-25sw	C	C(TS)
69	Conn. 15-4-P 1118 and tribs. P 1118-1, P 1118-1-1, P 1118-P 1118a	Tributary of Swamp River and subtributaries		O-25sw	C	C
70	Conn. 15-5 portion	Tributary of Tenmile River	From mouth to trib. 3.	O-25ne	C	C(T)
71	Conn. 15-5 portion	Tributary of Tenmile River	From trib. 3 to source.	O-25ne N-25se	C	C
72	Conn. 15-6	Stone Church Brook		O-25ne N-25se N-25sw	C	C(T)
73	Conn. 15-6-1 and trib. 1-1	Wells Stream and tributary	Water supply for Dover Plains.	O-25ne N-25se	A	A
74	Conn. 15-6-1a	Tributary of Stone Church Brook		N-25se	C	C
75	Conn. 15-7	Tributary of Tenmile River		O-25ne N-25se	C	C

DOVER PLAINS

SCALE IN MILES
1/2 0

MAP 0-25ne

REFERENCE 11

701.19 Classes and standards for fresh surface waters. The following items and specifications shall be the standards applicable to all New York fresh waters which are assigned the classification of AA, A, B, C or D, in addition to the specific standards which are found in this section under the heading of each such classification.

Quality Standards for Fresh Surface Waters

Items	*Specifications*
1. Turbidity.	No increase except from natural sources that will cause a substantial visible contrast to natural conditions. In cases of naturally turbid waters, the contrast will be due to increased turbidity.
2. Color.	None from man-made sources that will be detrimental to anticipated best usage of waters.
3. Suspended, colloidal or settleable solids.	None from sewage, industrial wastes or other wastes which will cause deposition or be deleterious for any best usage determined for the specific waters which are assigned to each class.
4. Oil and floating substances.	No residue attributable to sewage, industrial wastes or other wastes nor visible oil film nor globules of grease.
5. Taste and odor-producing substances, toxic wastes and deleterious substances.	None in amounts that will be injurious to fishlife or which in any manner shall adversely affect the flavor, color or odor thereof, or impair the waters for any best usage as determined for the specific water which are assigned to each class.
6. Thermal discharges.	(See Part 704 of this Title.)

CLASS "AA"

Best usage of waters. Source of water supply for drinking, culinary or food processing purposes and any other usages.

Conditions related to best usage of waters. The waters, if subjected to approved disinfection treatment, with additional treatment if necessary to remove naturally present impurities, will meet New York State Department of Health drinking water standards and will be considered safe and satisfactory for drinking water purposes.

Quality Standards for Class "AA" Waters

Items	*Specifications*
1. Coliform.	The monthly median coliform value for 100 ml of sample shall not exceed 50 from a minimum of five examinations and provided that not more than 20 percent of the samples shall exceed a coliform value of 240 for 100 ml of sample.
2. pH	Shall be between 6.5 and 8.5.

3. Total dissolved solids.	Shall be kept as low as practicable to maintain the best usage of waters, but in no case shall it exceed 500 milligrams per liter.
4. Dissolved oxygen.	For cold waters suitable for trout spawning, the DO concentration shall not be less than 7.0 mg/l from other than natural conditions. For trout waters, the minimum daily average shall not be less than 6.0 mg/l. At no time shall the DO concentration be less than 5.0 mg/l. For non-trout waters, the minimum daily average shall not be less than 5.0 mg/l. At no time shall the DO concentration be less than 4.0 mg/l.

CLASS "A"

Best usage of waters. Source of water supply for drinking, culinary or food processing purposes and any other usages.

Conditions related to best usage of waters. The waters, if subjected to approved treatment equal to coagulation, sedimentation, filtration and disinfection, with additional treatment if necessary to reduce naturally present impurities, will meet New York State Department of Health drinking water standards and will be considered safe and satisfactory for drinking water purposes.

Quality Standards for Class "A" Waters

Items	*Specifications*
1. Coliform.	The monthly median coliform value for 100 ml of sample shall not exceed 5,000 from a minimum of five examinations, and provided that not more than 20 percent of the samples shall exceed a coliform value of 20,000 for 100 ml of sample and the monthly geometric mean fecal coliform value for 100 ml of sample shall not exceed 200 from a minimum of five examinations.
2. pH	Shall be between 6.5 and 8.5.
3. Total dissolved solids.	Shall be kept as low as practicable to maintain the best usage of waters, but in no case shall it exceed 500 milligrams per liter.
4. Dissolved oxygen.	For cold waters suitable for trout spawning, the DO concentration shall not be less than 7.0 mg/l from other than natural conditions. For trout waters, the minimum daily average shall not be less than 6.0 mg/l. At no time shall the DO concentration be less than 5.0 mg/l. For non-trout waters, the minimum daily average shall not be less than 5.0 mg/l. At no time shall the DO concentration be less than 4.0 mg/l.

CLASS "B"

Best usage of waters. Primary contact recreation and any other uses except as a source of water supply for drinking, culinary or food processing purposes.

Quality Standards for Class "B" Waters

Items	*Specifications*
1. Coliform.	The monthly median coliform value for 100 ml of sample shall not exceed 2,400 from a minimum of five examinations, and provided that not more than 20 percent of the samples shall exceed a coliform value of 5,000 for 100 ml of sample and the monthly geometric mean fecal coliform value for 100 ml of sample shall not exceed 200 from a minimum of five examinations. This standard shall be met during all periods when disinfection is practiced.
2. pH	Shall be between 6.5 and 8.5.
3. Total dissolved solids.	None at concentrations which will be detrimental to the growth and propagation of aquatic life. Waters having present levels less than 500 milligrams per liter shall be kept below this limit.
4. Dissolved oxygen.	For cold waters suitable for trout spawning, the DO concentration shall not be less than 7.0 mg/l from other than natural conditions. For trout waters, the minimum daily average shall not be less than 6.0 mg/l. At no time shall the DO concentration be less than 5.0 mg/l. For non-trout waters, the minimum daily average shall not be less than 5.0 mg/l. At no time shall the DO concentration be less than 4.0 mg/l.

CLASS "C"

Best usage of waters. The waters are suitable for fishing and fish propagation. The water quality shall be suitable for primary and secondary contact recreation even though other factors may limit the use for that purpose.

Quality Standards for Class "C" Waters

Items	*Specifications*
1. Coliform.	The monthly median coliform value for 100 ml of sample shall not exceed 2,400 from a minimum of five examinations, and provided that not more than 20 percent of the samples shall exceed a coliform value of 5,000 for 100 ml of sample and the monthly geometric mean fecal coliform value for 100 ml of sample shall not exceed 200 from a minimum of five examinations. This standard shall be met during all periods when disinfection is practiced.
2. pH	Shall be between 6.5 and 8.5.

3. Total dissolved solids.	None at concentrations which will be detrimental to the growth and propagation of aquatic life. Waters having present levels less than 500 milligrams per liter shall be kept below this limit.
4. Dissolved oxygen.	For cold waters suitable for trout spawning, the DO concentration shall not be less than 7.0 mg/l from other than natural conditions. For trout waters, the minimum daily average shall not be less than 6.0 mg/l. At no time shall the DO concentration be less than 5.0 mg/l. For non-trout waters, the minimum daily average shall not be less than 5.0 mg/l. At no time shall the DO concentration be less than 4.0 mg/l.

CLASS "D"

Best usage of waters. The waters are suitable for fishing. The water quality shall be suitable for primary and secondary contact recreation even though other factors may limit the use for that purpose. Due to such natural conditions as intermittency of flow, water conditions not conducive to propagation of game fishery or stream bed conditions, the waters will not support fish propagation.

Conditions related to best usage of waters. The waters must be suitable for fish survival.

Quality Standards for Class "D" Waters

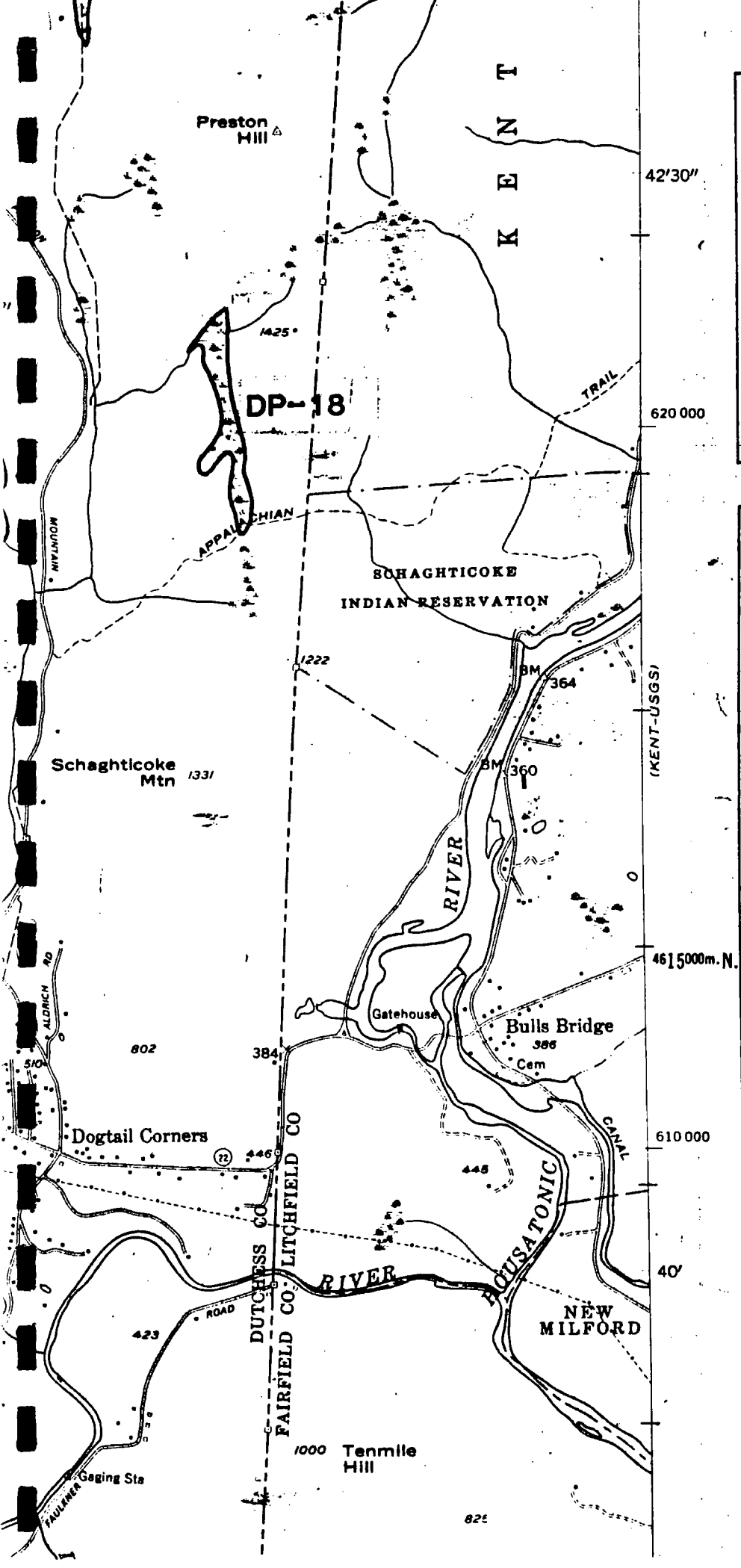
Items	*Specifications*
1. pH	Shall be between 6.0 and 9.5.
2. Dissolved oxygen.	Shall not be less than 3 milligrams per liter at any time.
3. Coliform.	The monthly median coliform value for 100 ml of sample shall not exceed 2,400 from a minimum of five examinations and provided that not more than 20 percent of the samples shall exceed a coliform value of 5,000 for 100 ml of sample and the monthly geometric mean fecal coliform value for 100 ml of sample shall not exceed 200 from a minimum of five examinations. This standard shall be met during all periods when disinfection is practiced.

Historical Note

Sec. added by renum. and amd. 701.4, filed July 3, 1985; amd. filed Sept. 20, 1985 eff. 30 days after filing.

701.20 Classes and standards for saline surface waters. The following items and specifications shall be the standards applicable to all New York saline surface waters which are assigned the classification of SA, SB, SC or SD, in addition to the specific standards which are found in this section under the heading of each such classification.

REFERENCE 12



NOTICE

This map shows wetlands protected under Article 24 of the State Environmental Conservation Law. Whether they are shown on this map or not, wetlands also may be protected under federal law, pursuant to Section 404 of the Clean Water Act, or under local law. Interested parties should consult with their appropriate Corps of Engineers office or local government to determine whether other permits are required.

New York State
Freshwater Wetlands Map

Dutchess County

Map 16 of 22

This map was promulgated, pursuant to Article 24 of the Environmental Conservation Law (The Freshwater Wetlands Act) on July 15, 1987 by the Commissioner of New York State Department of Environmental Conservation.

LEGEND:

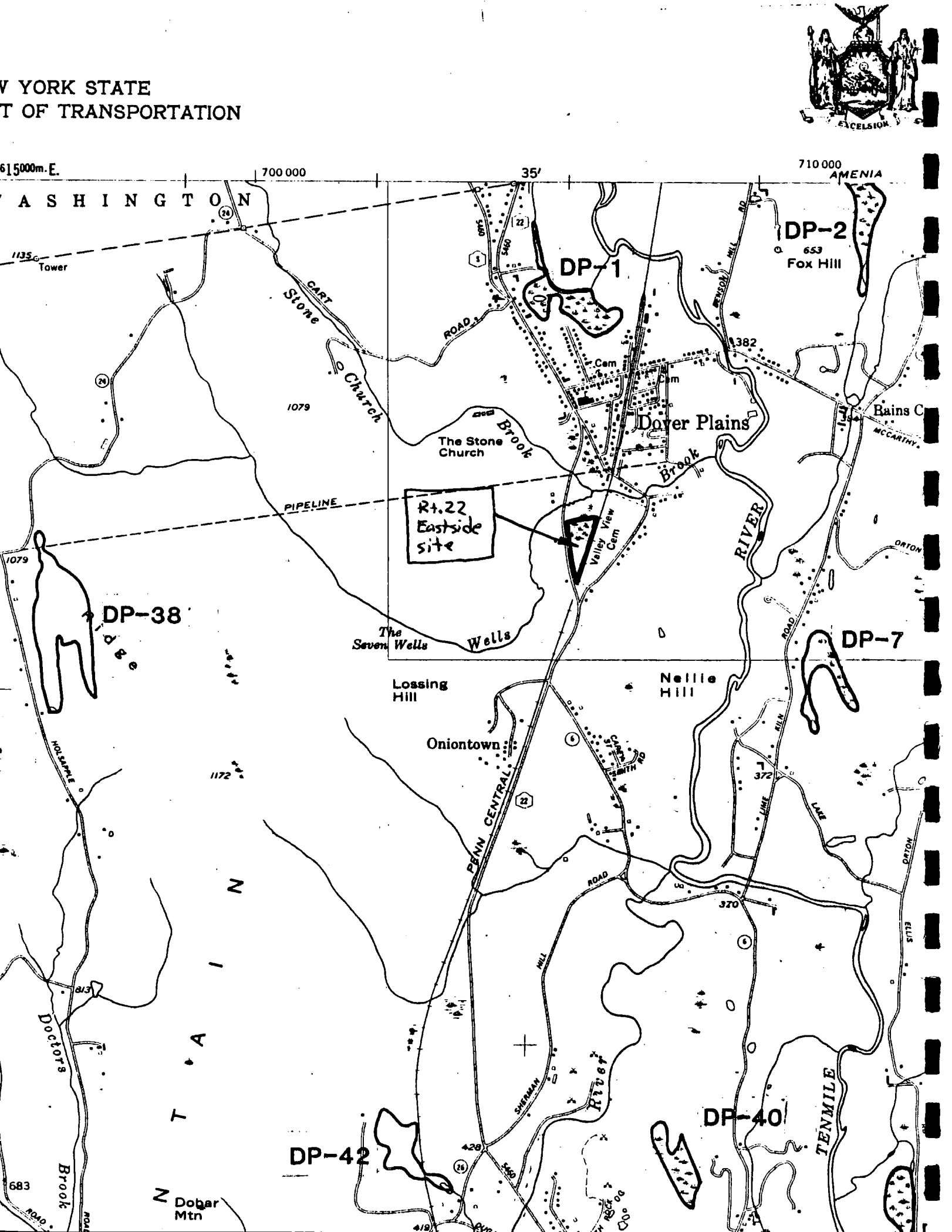
- Approximate wetland boundary
- Upland inclusion
- AA-00 Wetland identification code

NOTES:

This map indicates the approximate location of the actual boundaries of wetlands regulated according to the Freshwater Wetlands Act.

Map information other than the wetland boundaries was prepared by the New York State Department of Transportation and the United States Geological Survey. The locational information provided on the map is for reference only. Marsh symbols do not necessarily indicate the location of a regulated wetland.

Adjacent areas of the regulated wetlands are those areas within 100 feet of the boundary of the wetland. These areas are subject to regulation pursuant to the Freshwater Wetlands Act but are not delineated on this map. An adjacent area may be extended by special order of the Commissioner of the New York State Department of Environmental Conservation or the local regulatory authority.


W YORK STATE
T OF TRANSPORTATION
615000m.E.
700 000
35'
710 000
AMENIA
WASHINGTON
DP-1
DP-2
653
Fox Hill
DP-38
DP-7
DP-40
DP-42
Rt.22
Eastside
site
Dover Plains
The Stone
Church
Stone Church
CART
ROAD
PIPELINE
Brook
RIVER
Valley View
Cem
The
Seven Wells
Wells
Lossing
Hill
Nellie
Hill
Oniontown
PENN CENTRAL
HOLSAPPLE
Doctors
Brook
TENMILE
River
SHERMAN
HILL
LIME
KILN
LAKE
ELLS
DORTON
MCCARTHY
Dobar
Mtn
1135
Tower
1079
1172
1382
372
370
683
813
428
419

REFERENCE 13

SOIL SURVEY

Dutchess County New York

Series 1939, No. 23

Issued December 1955

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with the
CORNELL UNIVERSITY AGRICULTURAL EXPERIMENT STATION

soil. They are sufficiently well-drained for use as cropland and are comparable in drainage to the Pittstown soils, which were derived from acid shale and slate.

The Boynton soils are poorly drained, have gray or dark grayish-brown surface soil, and are mottled within 8 or 10 inches of the surface. They are comparable in drainage to the Stissing soils of the acid shale and slate group.

The very poorly drained black-surfaced Mansfield soil has a gray-mottled subsoil. As indicated in table 4, the Mansfield soil developed both from calcareous sandstone and slate and from acid shale and slate.

SOILS FROM LIMESTONE AND SLATE

The very deep well-drained Stockbridge soils occur in scattered areas throughout the eastern half of the county in association with soils of the acid shale and slate group and of the limestone group. They are comparable to Bernardston soils, acid shale and slate group, and like them, occupy broad hills with uniform slopes. The limestone is sufficient to make them neutral or calcareous in the lower subsoil, as are soils of the Troy series. Unlike the Troy soils, their source of lime is mainly limestone, not calcareous sandstone.

SOILS FROM LIMESTONE

The soils from limestone have developed from glacial till in which the principal rock material is limestone. These soils generally have a calcareous subsoil, though the plowed layer may be slightly to moderately acid. They are darker in color and generally "stronger" than the soils derived from till that contains less lime.

The very deep well-drained Pittsfield soils are not extensive but among the most productive in the county. In association with them, where the limestone in the till is mainly crystalline (approaching a marble), the sandy well-drained Dover soils have developed. Dover soils vary from a few inches to 6 feet deep over bedrock. Areas less than 2 feet thick over bedrock are characterized by many outcrops and are separated from the deeper Dover soils as a ledgy type. The well-drained Wassaic soils—heavier textured than the Dover—have developed where the limestone in the till is not crystalline. Like the Dover, the Wassaic soils vary from a few inches to 5 or 6 feet in thickness, and a ledgy Wassaic type is separated from the deeper Wassaic soils.

The Amenia soil occupies flat or gently sloping moderately well-drained to imperfectly drained areas. It has a brown surface soil and mottling below 15 or 18 inches. The poorly drained Kendaia soil has a dark-gray surface soil and mottling below 8 or 10 inches. The very poorly drained Lyons soil has a black surface soil and a gray-mottled subsoil.

SOILS DEVELOPED FROM GLACIAL OUTWASH

The soils developed from glacial outwash occur mainly as broad nearly level plains or hilly and hummocky kames in the valleys. They were derived from layered sands and gravel deposited by running water during the melting of the glacier. They are not so extensive as the soils derived from glacial till, but their favorable relief and general productivity place them among the best soils in the county.

SOILS FROM GRANITE AND GNEISS

The glacial outwash soils derived chiefly from granite and gneiss are the Merrimac. These sandy soils are deep, strongly acid, and well-drained or excessively drained. They have developed from glacial outwash from granite and gneiss materials. They are loose and open throughout and are underlain by deep beds of layered sands and gravel. They are low in content of plant nutrients and are inclined to be droughty. The hilly and steep phases were formerly recognized as a separate series, the Hinckley.

SOILS FROM ACID SHALE AND SLATE

Glacial outwash soils derived chiefly from acid shale and slate occur mainly in the western half of the county in the valleys of Fishkill and Wappinger Creek and on the high terraces along the Hudson River. They are deep and moderately to strongly acid throughout. They are underlain at depths between 2 and 4 feet by layered beds consisting of rounded pieces of slate, shale gravel, and sand.

The well-drained Hoosic soils range from gravelly sandy loam to loam in texture. They are not naturally high in plant nutrients but respond well to fertilization and are highly productive when properly managed. Their good internal drainage is indicated by the uniform brown to yellow colors of the profile. The hilly and steep phases were formerly recognized as a separate series, the Otisville.

In small depressions and flats associated with the Hoosic soils are areas with very compact substrata below 24 or 30 inches. These areas were mapped as Braceville, Hero, and Phelps silt loams, undifferentiated. The moderately well to imperfectly drained bodies of Braceville soil occur where internal drainage is retarded only enough to cause mottling with rusty brown and gray in the subsoil below depths of 15 to 18 inches. The Hero and Phelps soils, though mapped in the undifferentiated unit, did not develop from acid shale and slate, so are mentioned with their appropriate groups.

The Red Hook soil occurs where a high water table is maintained for long periods; its surface soil is dark gray or dark grayish brown, and its subsoil is mottled to within 8 or 10 inches of the surface. The Atherton soil is in the more poorly drained depressions; its surface soil is black, and its subsoil is gray or mottled gray and brown throughout.

SOILS FROM CALCAREOUS SANDSTONE, LIMESTONE, AND SLATE

The glacial outwash soils derived chiefly from sandstone, limestone, and slate are the Copake and Hero. The Copake soils are comparable to the Hoosic soils in being deep, well-drained, and underlain by stratified gravel and sand. They differ, however, in having free lime at depths of 3 to 8 feet and in having a slightly less acid surface soil. The hilly and steep phases of Copake soil were formerly recognized as belonging to the Schodack series. The Hero soils, mapped in an undifferentiated group with Braceville and Phelps soils, have developed from materials similar to those of the Copake soils, but they occupy depressions or flats and are moderately well to imperfectly drained.

undulating phases of Copake gravelly loam in relief and in general soil characteristics except texture. The areas occur in the western part of the county on the Hudson River terraces south of Poughkeepsie. Other small areas are scattered outside of this general region. These soils are nearly level to undulating, free of stone and gravel, easy to work, and highly responsive to management.

The 12-inch surface soil under sod is dark brown, mellow, finely granular, and well penetrated with grass roots. The upper subsoil is structureless mellow very fine sandy loam that extends to a depth of 20 inches. The subsoil below 20 inches to a depth of 36 inches is firm but friable dark yellowish-brown gravelly fine sandy loam. This layer and those above are medium to strongly acid. The subsoil below 36 inches down to 48 inches is structureless dark yellowish-brown gravelly sand that is only slightly acid. Loose gray-brown gravelly coarse sand, about neutral in reaction, extends from 48 inches to a depth of 60 inches. From 60 inches to 18 or 20 feet is stratified slate-gray gravelly sand and coarse gravel coated with lime carbonate and somewhat cemented together. The gravel throughout the profile came from slate, shale, sandstone, limestone, and quartz.

The profile varies considerably in reaction. The surface soil is more strongly acid than that of Copake gravelly loam, nearly level and undulating phases. The alkaline material is usually at a depth of about 42 inches but it may be deeper in some areas. Calcareous materials occur at varying depths ranging from 5 to 8 feet below the surface. Roots, especially of alfalfa and red clover, penetrate all layers. These phases are droughty and less fertile than Copake gravelly loam, nearly level and undulating phases.

Use and management.—Copake fine sandy loam, nearly level and undulating phases, occupies small areas of 3 to 20 acres.

The cultivated areas are used for orchard fruits, alfalfa, timothy, red clover, corn, and oats. The rotations followed and fertilizer treatments used are similar to those for Copake gravelly loam, nearly level and undulating phases, but yields are somewhat lower.

Pastures are confined mainly to old meadows and are generally fair to good. They contain red clover, timothy, redtop, poverty oatgrass, Canada bluegrass, a little wild white clover, and daisy, goldenrod, wild aster, yarro, mullein, and other weeds. Old permanent pastures, most of which are not treated, contain more weeds and poverty oatgrass. Pastures are damaged during very dry seasons because these phases are inclined to be droughty. Idle areas are suitable for cultivation but need much organic matter and fertilizer.

These phases are exceptionally well suited to early vegetables. They warm quickly in spring and are easy to work. They are productive of most crops when well managed but decline in productivity if management is poor.

Copake gravelly loam, nearly level and undulating phases (0–8% slopes) (Cp).—These are highly productive nearly level well-drained phases derived from stratified outwash sand and gravel that contains sufficient calcareous sandstone or limestone materials to make them calcareous in the deep substratum. The parent material also contains slate, shale, and schist, but less of these than are in parent material for the acid soils of the Hoosic series. The soils occur

on smooth or gently undulating terraces in the Copake soil association and in valleys in the central and western parts of the county. Areas vary from 2 to 70 acres in size. Slopes range from 0 to 8 percent but are mostly less than 5 percent.

The dark-brown gravelly loam surface soil is friable, granular, well penetrated with roots, and about 11 inches thick. The upper subsoil is a firm but friable yellowish-brown gravelly loam slightly heavier than the surface soil. The subsoil, from a depth of 20 to 38 inches, is dark yellowish-brown gravelly coarse sandy loam. To a depth of 38 inches the layers are medium to slightly acid. Below 38 inches down to 44 inches is loose grayish-brown fine gravel and sand, only slightly acid or neutral. The substratum occurs below 44 inches; it is stratified loose grayish-brown gravel and sand, calcareous, and slightly cemented by a lime-carbonate coating on the gravel below 50 or 60 inches. The gravel consists of sandstone, limestone, schist, quartz, slate, and shale. Roots penetrate all layers. Internal drainage is good.

These soils vary in reaction of the surface soil, depth to alkaline and to calcareous materials, and depth of the surface soil. The surface soil is moderately to strongly acid in some areas and slightly acid in others. The subsoil is seldom alkaline above 30 inches and usually is acid to a depth of 40 inches. The depth to calcareous materials varies from 4 to 8 feet. The surface soil ranges from 8 to 12 inches in thickness. It has been slightly to moderately eroded where gently sloping, but erosion is never severe. A few included areas have almost gravel-free surface soil.

Use and management.—Many farms are supported mainly by Copake gravelly loam, nearly level and undulating phases (pl. 1, *C*). Cultivated areas are used principally for corn, oats, and hay in support of dairying (pl. 2, *A*), and to some extent for fruit. The rotations vary as to the crops included and the length.

From 8 to 10 tons of manure supplemented with 200 to 300 pounds of 20-percent superphosphate is usually applied for corn. Lime is applied with 150 to 200 pounds an acre of 20-percent superphosphate on areas prepared for oats that are to be sown as a companion crop for seedings of hay plants. The quantity of lime applied varies from ½ to 1½ tons an acre. Alfalfa, timothy, and red clover are the principal hay crops. Once alfalfa is established, it is commonly maintained without fertilization for 4 or 5 years, or until the yields fail.

Pastures are confined to run-out meadows, which are pastured 1 or 2 seasons before plowing. They generally are fair to good and contain timothy, some red clover, bluegrass, redtop, wild white clover, and a small quantity of weeds. Few areas except small ones associated with soils of low productivity are left idle, but these are suitable for cultivation.

Copake gravelly loam, rolling phase (5–15% slopes) (Cr).—This soil occurs in association with Copake gravelly loam, nearly level and undulating phases, but on the more rolling terraces and on the sloping faces of the level terraces. Its stronger slope and more rolling relief distinguish it from the nearly level and undulating phases. Areas are generally small (5 to 10 acres), though a few range from 25 to 35 acres in size.

CULTURE
RVICE

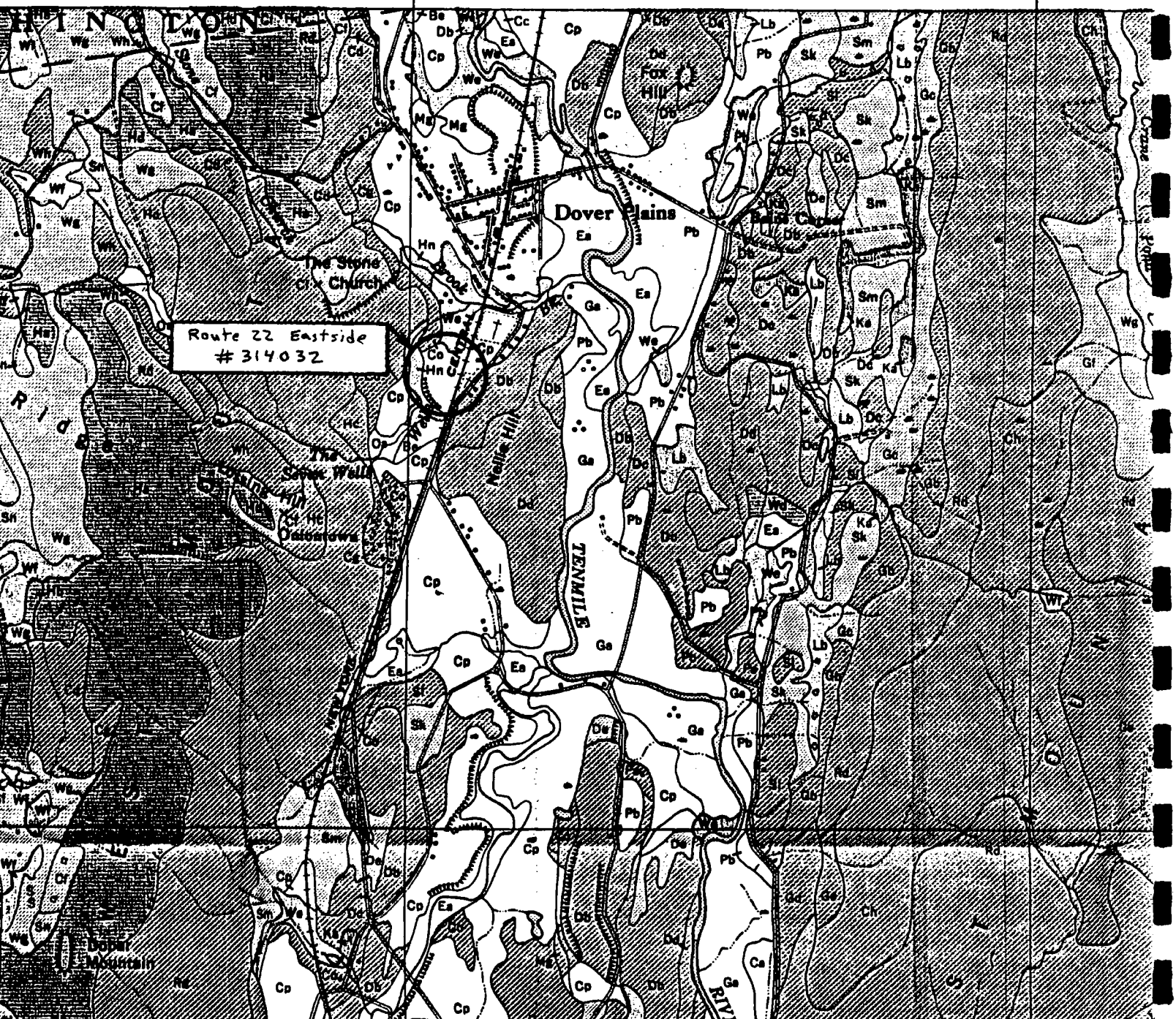
SOIL MAP
DUTCHESS COUNTY - NEW YORK
SHEET NO. 14

700 000 FEET

Sheet No. 7

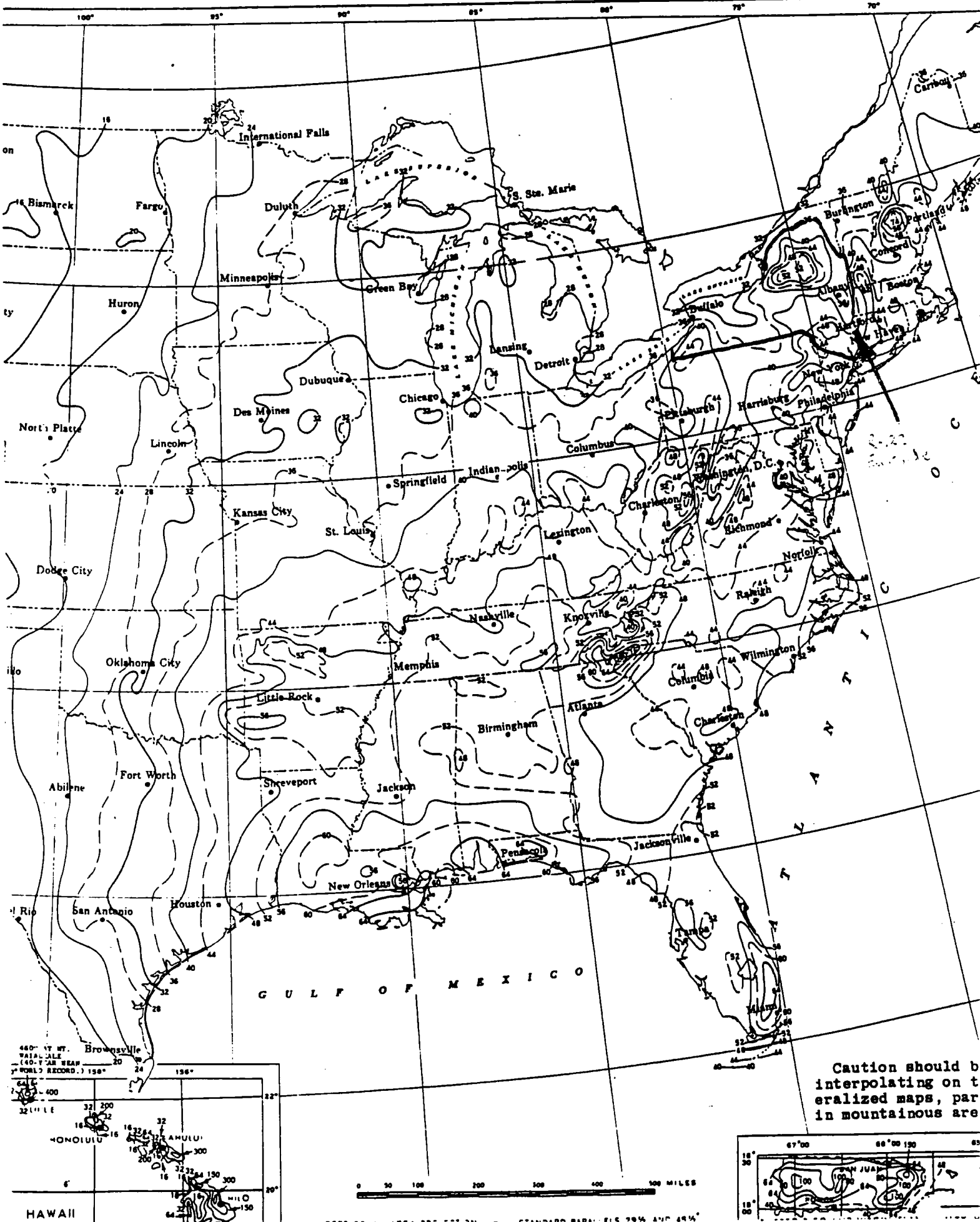
35'

32' 30"



REFERENCE 14

ANNUAL TOTAL PRECIPITATION (Inches)



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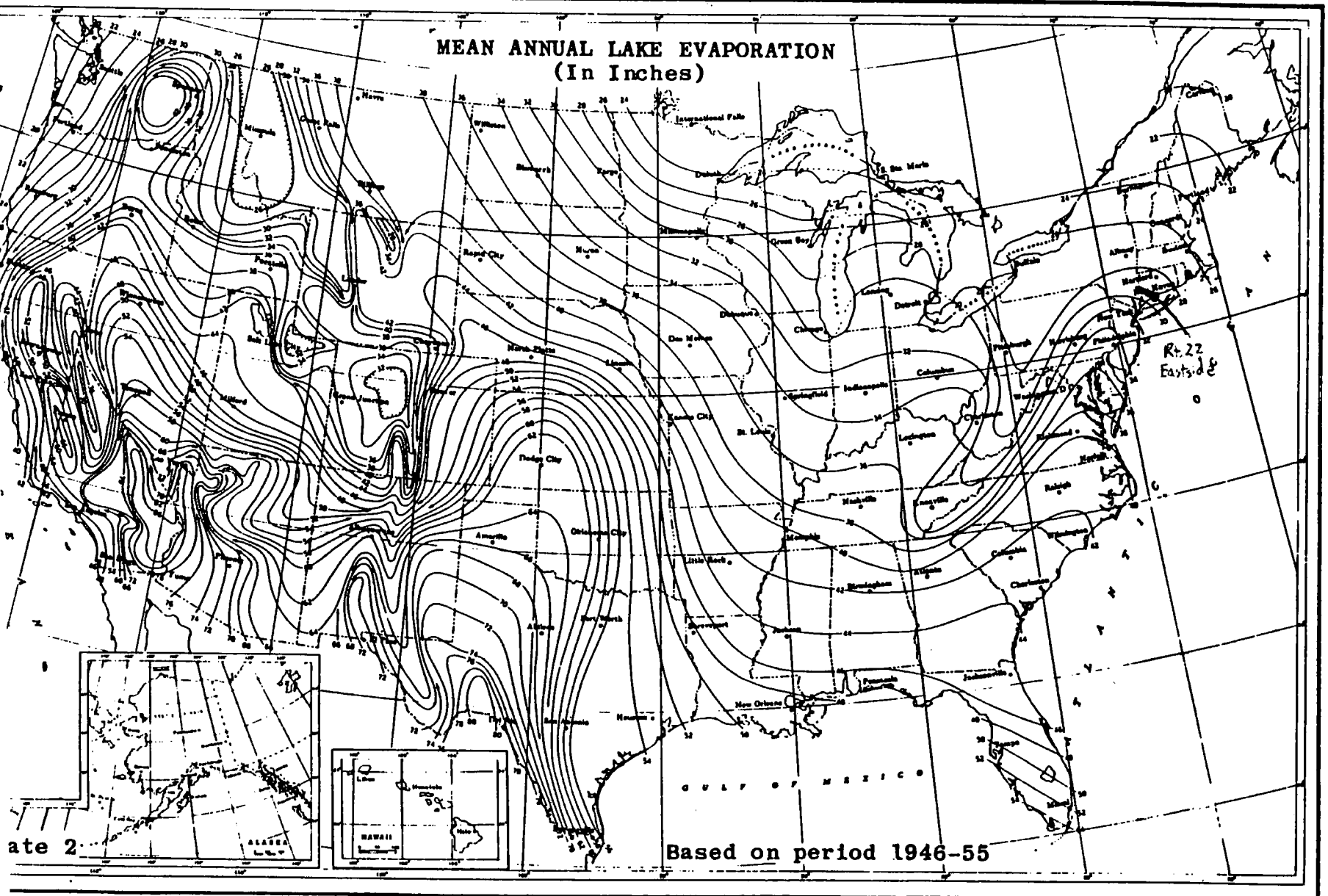

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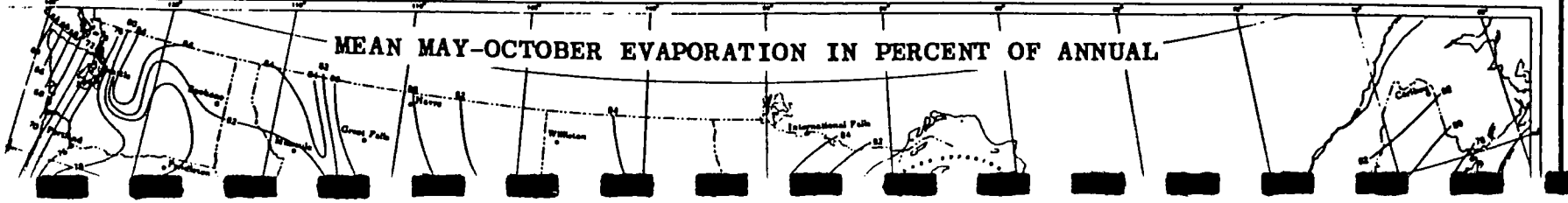


REFERENCE 15

New York State Atlas of Community Water System Sources 1982

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL PROTECTION
BUREAU OF PUBLIC WATER SUPPLY PROTECTION

DUTCHESS COUNTY

ID NO	COMMUNITY WATER SYSTEM	POPULATION	SOURCE
Municipal Community			
1	Amenia Water District #1	1000	Wells
2	Annandale Water Company	1008	Wells
3	Atlas Water Company	1300	Wells
4	Beacon City (See also No 3 Putnam Co)	5000	Mt. Beacon & Melzinga Reservoirs, Wells
5	Beekman Country Club	300	Wells
6	Brettview Acres Water Company	920	Wells
7	Brinkerhoff Water Company	3500	Wells
8	Central Wappinger Improvement Area	1800	Wells
9	Deerfield Estates Water District	900	Wells
10	Dogwood Knolls	600	Wells
11	Dover Plains Water Company	1500	Wells
12	Dover Ridge Estates	60	Wells
13	Dutchess Estates Inc	700	Wells
14	Fishkill Village	6000	Wells
15	Fleetwood Manor Water District	850	Wells
16	Grandview Water District	160	Wells
17	Greenfield Water District	1250	Wells
18	Greenmeadow Park Water Company	350	Wells
19	Harbourd Hills Water Company Inc	900	Wells
20	Hopegard, Inc	275	Wells
21	Hopewell Services, Inc	900	Wells
22	Hyde Park Fire & Water District	4000	Crum Elbow Creek, Wells
23	Kensington Park Water Company	65	Wells
24	La Grange Club Estates	120	Wells (Infiltration Gallery)
25	Little Switzerland Water Company	600	Wells
26	Millbrook Village	1735	Wells
27	Millerton Village	1600	Wells
28	Noxon Knolls Water District	250	Wells
29	Oakwood Knolls	310	Wells
30	Pawling Village	2000	Pawling Reservoir, Wells
31	Pine Plains Water Company	1060	Wells
32	Pinewood Knolls	265	Wells
33	Poughkeepsie City	30000	Hudson River
34	Quaker Hill Estates Water District	424	Wells
35	Red Hook Village	2000	Wells
36	Revere Park Water Company	560	Wells
37	Rhinebeck Village	4200	Hudson River
38	Rockingham Farms	3000	Wells
39	Rokeby Homes, Inc	184	Wells
40	Schreiber Water Works	110	Wells
41	Shorehaven Civic Association	300	Wells
42	South Cross Road Water Company Inc	572	Wells (Infiltration Gallery)
43	Staatsburgh Water Company	1072	Indian Kill Reservoir, Wells
44	Taconic Estates	185	Wells
45	Tall Trees	250	Wells
46	Titusville Water District	700	Wells
47	Tivoli Village	713	Wells
48	Valley Dale Water Company	380	Wells
49	Wappinger Park Homes	400	Wells
50	Wappingers Falls Village	5100	Wells
51	Willow Lake Water Company	126	Wells
52	Windermere Highlands	375	Wells
Non-Municipal Community			
53	Angels Trailer Park	40	Wells
54	Arbor Arms Apartments	50	Wells
55	Arvans Mobile Court #1	72	Wells
56	Bard College	NA	Sawkill Creek
57	Beckwith Trailer Park	26	Wells
58	BGB Mobile Home Park	137	Wells
59	Birchwood Mobile Home Park	42	Wells
60	Brooks Mobile Home Park	25	Wells
61	Cannons Trailer Park	16	Wells
62	Canterbury Garden Apartments	600	Wells
63	Cedar Hollow Mobile Home Park	90	Wells
64	Cedar Lane Mobile Home Park #2	28	Wells
65	Charlotte Grove Mobile Trailer Park	110	Wells
66	Chateau Hyde Park Home for Adults	120	Wells
67	Chelsea Ridge Apartments	1800	Wells
68	Clove Branch Apartments	19	Wells
69	Colonial Maples Trailer Park	30	Wells
70	Cooper Road Trailer Park	35	Wells
71	Cove View Apartments	48	Wells
72	Daytop Village	70	Wells
73	Dutch Garden Apartments	450	Wells
74	Dutchess Trailer Park	30	Wells
75	East Mountain Trailer Park	28	Wells
76	Eleanor Roosevelt	200	Wells
77	Elliott Apartments	36	Wells
78	Ennis Mobile Home Park	92	Wells
79	Feller Trailer Court	60	Wells
80	Fieldside Apartments	50	Wells
81	Fishkill Park Apartments	240	Wells
82	Frantoni Villas	50	Wells
83	Gerhard P Stoetzel	30	Wells
84	Green Haven Correctional Facility	NA	Reservoir
85	Green Meadow Trailer Court	44	Wells
86	Greer School	300	Wells
87	Harlem Valley Psychiatric Center	1200	Swamp River
88	Haviland Apartments	100	Wells
89	Haviland Mobile Home Park #1	44	Wells
90	Haviland Mobile Home Park #2	29	Wells
Non-Municipal Community			
91	Hi Vu	50	Wells
92	Hickory Hill Mobile Home Park	250	Wells
93	Hidden Hollow Apartments	850	Wells
94	Hidden Valley Mobile Court	10	Wells
95	High Meadows Park Inc	198	Wells
96	Hoffman Trailer Park	28	Wells
97	Hudson River Psychiatric Center	2000	Hudson River
98	Hudson View Water Works	1800	Wells
99	Hyde Park Mobile Manor Estates	NA	Wells
100	Hyde Park Terrace Apartments	70	Wells
101	Kent Hollow Apartments	24	Wells
102	Kowmel Trailer Park	20	Wells
103	Lake Ellis Mobile Home Park	81	Wells
104	Lake Lodges Apartments	24	Wells
105	Lake Walton Park	62	Wells
106	Lakeview Mobile Home Park	NA	Wells
107	Lamplight Court Mobile Estates	23	Wells
108	Ledges Apartments	460	Wells
109	Little Falls Trailer Park	163	Wells
110	M and D Mobile Home Park	108	Wells
111	Maple Lane Trailer Park	150	Wells
112	May Lane Mobile Park	10	Wells
113	Maymark Mobile Manor	110	Wells
114	McCarthy's Trailer Park	42	Wells
115	Mobile Home Gardens	30	Wells
116	Montclair Townhouse Apartments	660	Wells
117	Mountain View Mobile Estates	55	Wells
118	Northeastern Conference Nursing Home	120	Wells
119	Northern Dutchess Mobile Home Park	31	Wells
120	Odells Trailer Park	19	Wells
121	Osborne Trailer Park	15	Wells
122	Palmer Apartments	27	Wells
123	Parkway Apartments	16	Wells
124	Partridge Hill Apartments	150	Wells
125	Phillips Trailer Park	45	Wells
126	Pine Grove Mobile Home Park	40	Wells
127	Powell Road Mobile Park	115	Wells
128	Ramsey's Trailer Park	28	Wells
129	Red Church Trailer Park	12	Wells
130	Rhinebeck Country Village	100	Wells
131	Rhinebeck Mobile Court	120	Wells
132	Roberts Running Creek Trailer Park	88	Wells
133	Route 82 Trailer Park	26	Wells
134	Royal Crest Apartments	158	Wells
135	Sabo Trailer Park	45	Wells
136	Saith Mobile Home Park	26	Wells
137	Scenic Apartments	432	Wells
138	Scenic View Mobile Home Park	27	Wells
139	Shady Acres Trailer Park	26	Wells
140	Shady Homes Trailer Park	42	Wells
141	Shady Lane Trailer Park	13	Wells
142	Simpson Mobile Home Site	27	Wells
143	Springhill Mobile Home Park	NA	Wells
144	Sunset Farms Mobile Home Park	35	Wells
145	Sunset Knolls	50	Wells
146	Taconic Motor Lodge	22	Wells
147	Tally Ho Mobile Estates	NA	Wells
148	T&T Apartments	14	Wells
149	The Lodge at Rhinebeck	NA	Wells
150	Unification Theological Church	150	Wells
151	Val Kill Park East	72	Wells
152	Valley Forge Mobile Home Park	60	Wells
153	Ventura Lake Estates	44	Wells
154	Village Crest Apartments	600	Wells
155	Wappingers Falls Trailer Park	50	Wells
156	Wassaic Developmental Center	2300	Wells
157	Willow Tree Park	30	Wells
158	Wingdale Village Park	72	Wells
159	Woodcrest Manor Adult Home	NA	Wells
160	Woodfield Apartments	7	Wells

PUTNAM COUNTY

ID NO	COMMUNITY WATER SYSTEM	POPULATION	SOURCE
Municipal Community			
1	Alpino Village	140	Wells
2	Archer Estates	100	Wells
3	Beacon City (See Dutchess Co)		Cargill Reservoir
4	Blackberry Hill	400	Wells
5	Bonniville Water Company	160	Wells
6	Brewster Heights	1100	Middle Branch Reservoir
7	Brewster Village	1200	East Branch Croton River
8	Capri Estates	140	Wells
9	Carmel Water District #2	4000	Lake Glenside
10	Carmel Water District #3	1600	Lake Secor
11	Carmel Water District #4- Baldwin Water Company	1600	Wells
12	Carmel Water District #5- Maple Terrace	180	Wells
13	Carmel Water District #6- Shell Valley	324	Wells
14	Carmel Water District #7- Tomahawk Creek	68	Wells
15	Chateau Ridge	100	Wells
16	Cold Springs Village	3000	Foundry Brook Reservoir
17	Colonial Drive	105	Lake Mahopac
18	Country Hill Estates	200	Wells
19	Crescent Road Water Supply	20	Wells
20	First Brewster Corporation	255	Wells
21	Floredan Lodge	400	Wells
22	Forest Park Homes	200	Wells
23	Fox Hill Estates	128	Wells
24	Garrison Water Supply	84	Wells (Infiltration Gallery)
25	George Walsh	48	Wells
26	Glenmar Gardens	NA	Wells
27	Greymoor Village	220	Wells
28	Gypsy Trail Club	300	Wells
29	Hillsdale Estates	240	Wells
30	Indian Hill	56	Wells
31	Ivy Hill Water Supply	240	Wells
32	Kent Water District #1	360	Wells
33	Lake View Park	400	Lake Mahopac
34	Lasalde Estates	256	Wells
35	Lisdon Bridge Water Works	288	Well, Well (Infiltration Gallery)
36	Mahopac Hills	440	Lake Mahopac
37	Mahopac Lake Shore Estates	80	Wells
38	Mahopac Ridge Water Supply	1600	Lake Mahopac
39	Mahopac Water Company	500	Wells
40	Mill Pond Water Supply	70	Wells
41	New York City - Aqueduct System (page 76)		Bog Brook, East Branch and Middle Branch Reservoirs (Croton Aqueduct System); Boyd Corners[1] (drained, unsafe dam), Croton Falls[2], and West Branch Reservoirs[1] (Croton and Delaware Aqueduct Systems)
42	Rainbow Hill Estates	120	Wells
43	Red Mills Water Supply	400	Wells
44	Spring Knoll Estates	20	Wells
45	Star Ridge Manor	168	Wells
46	Sunrise Ridge	178	Wells
47	Union Valley Estates	290	Wells
48	Vails Grove	510	Wells
49	West Branch Acres	240	Wells
50	Wildwood Homes	148	Wells
51	Wood Hill Estates	100	Wells
52	York View	200	Wells
Non-Municipal Community			
53	Brewster Woods Condominium	200	Wells
54	Capuchin Theological Seminary	65	Reservoir, Wells
55	Carpenter Trailer Park	NA	Wells
56	Casa Serena Rest Home	30	Wells
57	Clearing In the Woods	162	Wells
58	Cold Spring Trailer Court	15	Wells
59	Elek Apartments	48	Wells
60	Forest Haven Apartments	400	Wells
61	Harmony Trailer Park	NA	Wells
62	Holly Sprays Condominium Apartments	225	Wells
63	Kent Apartments	56	Wells
64	Kent Nursing Home	355	Wells
65	Knolls Trailer Court	NA	Wells
66	Ludingtonville Apartments	80	Wells
67	Malcolm Gordon School	61	Wells
68	Meadow Motor & Mobile Home Court	30	Wells
69	Middle Branch Apartments	41	Wells
70	Patterson Trailer Park	80	Wells
71	Patterson Village Condominiums	197	Wells
72	Post Road Mobile Home Park	NA	Wells
73	Putnam Community Hospital	111	Wells
74	St Basil Academy	40	Indian Brook
75	Tilly Foster Apartments	36	Wells
76	Vista on the Lake Condominiums	402	Wells
77	Walter Moving Home	25	Wells
78	Wendalin Town House Apartments	150	Wells
79	Woodcrest Apartments	400	Wells

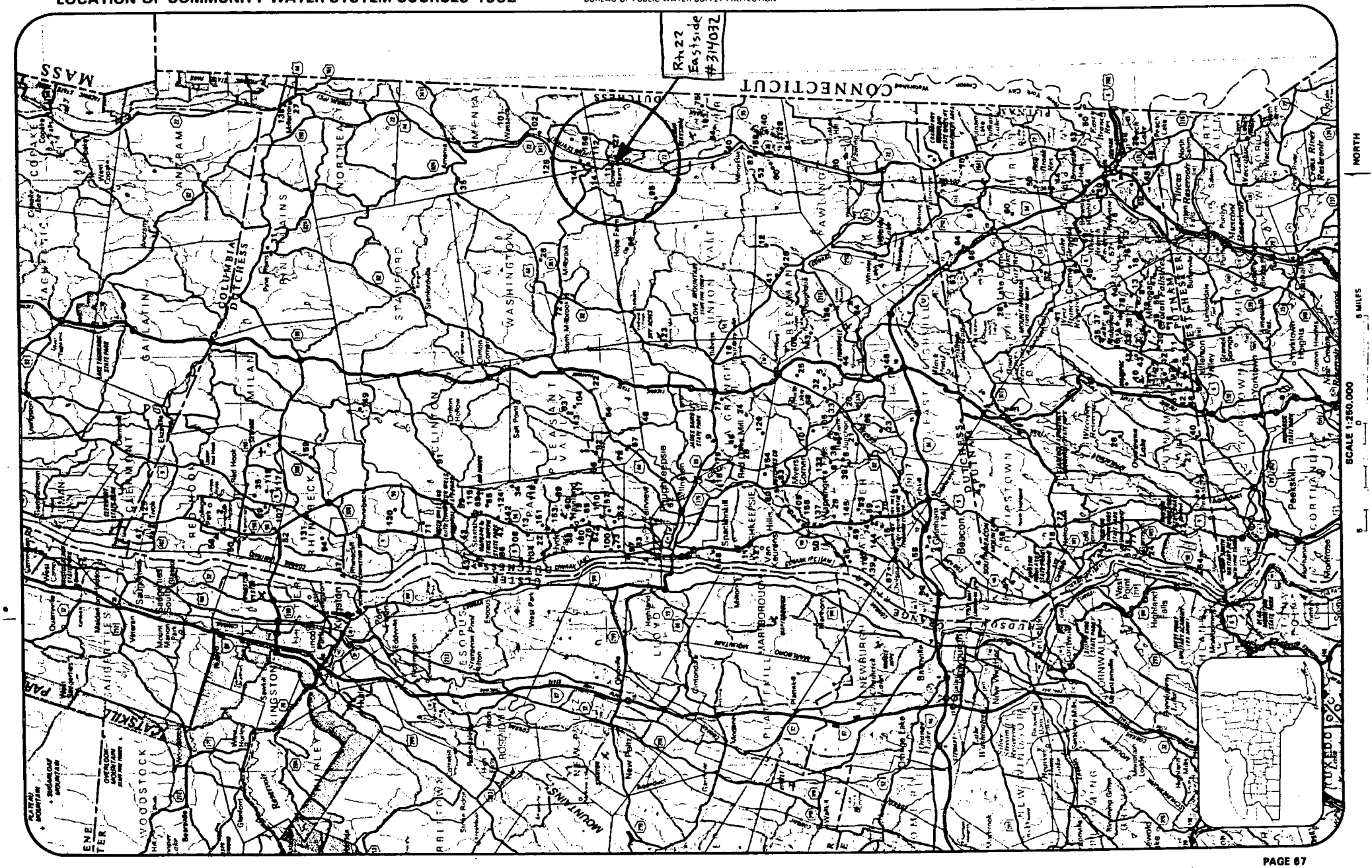
[1] Functions as part of Delaware System, overflow goes into Croton System.

[2] Functions as part of the Croton System, but has limited capability to pump into the Delaware System.

LOCATION OF COMMUNITY WATER SYSTEM SOURCES-1982

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL PROTECTION
BUREAU OF PUBLIC WATER SUPPLY PROTECTION

DUTCHESS and PUTNAM COUNTIES



REFERENCE 16

CONTACT MEMO

FROM: Maritza Montesinos-Gross DATE: 7 September 1989

CONTACT: Stanley Mankin OF: Dover Plains Water Works

PHONE: 203-927-3814 FILE: 576-021

PROJECT	X	PROPOSAL		BS. DEV		OTHER	

TYPE	PHONE	X	MEETING		OTHER	

SUMMARY OF DISCUSSION

Mr. Mankin informed me that they serve the Village of Dover Plains. He approximates that less than 1000 people are served. The system obtains its water entirely from 2 gravel-packed wells. As far as he knows, they have never been supplemented by surface water. The wells are located just south of the Village to the West of Rt 22. They are close to Stone Church Brook.

ACTION ITEMS

CIRCULATE TO:

CONTACT MEMO

FROM: _____ DATE: _____

CONTACT: _____ OF: _____

PHONE: _____ FILE: _____

PROJECT		PROPOSAL		BS. DEV		OTHER	
TYPE		PHONE		MEETING		OTHER	

SUMMARY OF DISCUSSION

ACTION ITEMS

CIRCULATE TO:

APPENDIX B

UPDATED NYSDEC/DHWR

INACTIVE HAZARDOUS WASTE DISPOSAL REPORT

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION
INACTIVE HAZARDOUS WASTE DISPOSAL REPORT

CLASSIFICATION CODE: 2a REGION: 3 SITE CODE: 314032
EPA ID: NYD980508147

NAME OF SITE: Route 22, Eastside
STREET ADDRESS: Route 22, South of Dover Village Shopping Center
TOWN/CITY: Town of Dover COUNTY: Dutchess ZIP: 12522

SITE TYPE: Open Dump- Structure- Lagoon- Landfill-X Treatment Pond-
ESTIMATED SIZE: 1-2 Acres

SITE OWNER/OPERATOR INFORMATION:
CURRENT OWNER NAME.....: Richard Rennia & Robert Keller
CURRENT OWNER ADDRESS.....: P.O. Box 238, Dover Plains, New York 12522
OWNER(S) DURING USE.....: Dave Farrell
OPERATOR DURING USE.....: Town of Dover
OPERATOR ADDRESS.....: East Duncan Hill Rd., Dover Plains, NY 12522
PERIOD ASSOCIATED WITH HAZARDOUS WASTE: From late 1940s To early 1960s

SITE DESCRIPTION:

A Phase I has been completed. Recommended for delisting after a few soil samplings.

An inactive sanitary landfill is surrounded by Route 22, Dover Village Shopping Center and the Penn-Central Railroad. The site was used for about 10 years between 1940 and 1960.

The fill area was partially in marshland and has been filled, leveled, and stabilized with off-site and on-site soils. Site is characterized by relatively flat northern and central areas and steep southern banks. Site is easily accessible to the general public. Surface water drains into Wells Brook, suitable for drinking, 350 ft north of the site, and into Stone Church Brook, 550 ft north-northwest of the site. The Dover Plains community wells are 2200 ft north-northwest of the site and serve <1500 people. The shopping center along the northern border and the homes along Nellie Hill Road, 0.19 mi east of the site, use private wells.

Site inspections indicate no leachate, exposed waste, or stressed vegetation. Site is well vegetated, and there were no odors discernible. No analytical data are available.

HAZARDOUS WASTE DISPOSED: Confirmed- TYPE	Suspected- QUANTITY (units)
No recorded history of hazardous waste disposal	Unknown

SITE CODE: 314032

ANALYTICAL DATA AVAILABLE:
Air- Surface Water- Groundwater- Soil- Sediment- None-X

CONTRAVENTION OF STANDARDS:
Groundwater- Drinking Water- Surface Water- Air-

LEGAL ACTION:

TYPE..: Administrative State-X Federal-
STATUS: Negotiation in Progress- Order Signed-

REMEDIAL ACTION:

Proposed- Under Design- In Progress- Completed-

NATURE OF ACTION:

GEOTECHNICAL INFORMATION: Surficial deposits consisting of stratified sand and gravel overlie the Stockbridge Limestone.

SOIL TYPE: Copake gravelly loam, nearly level and undulating phases (0 to 8% slopes)
GROUNDWATER DEPTH: 6 ft

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:

No leachate visible. No waste visible. No signs of stressed vegetation. Site well vegetated and no odors. Adequate cover.

ASSESSMENT OF HEALTH PROBLEMS:

Medium	Contaminants Available	Migration Potential	Potentially Exposed Population	Need for Investigation
Air	Unknown	Unlikely	Yes	Low
Surface Soil	Unknown	Unlikely	Yes	Low
Groundwater	Unknown	Likely	Yes	Low
Surface Water	Unknown	Unlikely	Yes	Low

Health Department Site Inspection Date:

MUNICIPAL WASTE ID: 14-S-08